

=> d his

(FILE 'REGISTRY' ENTERED AT 11:15:09 ON 24 FEB 2003)

DEL HIS Y
ACT LINKER/A

L1 SCR 2043
L2 SCR 1298
L3 STR
L4 75635 SEA FILE=REGISTRY SSS FUL L3 AND L2 NOT L1

L5 1 S 111-46-6
ACT RINGS/A

L6 (16)SEA FILE=REGISTRY ABB=ON PLU=ON 49876.1/RID
L7 (2103)SEA FILE=REGISTRY ABB=ON PLU=ON 10471.4/RID
L8 (351)SEA FILE=REGISTRY ABB=ON PLU=ON 8866.2/RID
L9 (5)SEA FILE=REGISTRY ABB=ON PLU=ON 10471.20/RID
L10 2475 SEA FILE=REGISTRY ABB=ON PLU=ON L7 OR L6 OR L8 OR L9

L11 30 S L4 AND L10
L12 0 S L5 AND L10

FILE 'HCAPLUS' ENTERED AT 11:19:38 ON 24 FEB 2003

L13 15 S L11
L14 10555 S L5
L15 2449 S L10
L16 3 S L14 AND L15
L17 19022 S BIOMOLEC? OR BIOMARKER?
L18 2 S L15 AND L17
L19 4257 S LINKER#
L20 6 S L19 AND L15

=> fil reg

FILE 'REGISTRY' ENTERED AT 11:22:16 ON 24 FEB 2003

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 21 FEB 2003 HIGHEST RN 493666-74-3

DICTIONARY FILE UPDATES: 21 FEB 2003 HIGHEST RN 493666-74-3

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP PROPERTIES for more information. See STNote 27, Searching Properties in the CAS Registry File, for complete details:

<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

=> d que stat l4

L1 SCR 2043

L2 SCR 1298

L3 STR

O—CH2-CH2-O—CH2-CH2
1 2 3 4 5 6

covers linker for all structures

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE

L4 75635 SEA FILE=REGISTRY SSS FUL L3 AND L2 NOT L1

100.0% PROCESSED 342162 ITERATIONS

75635 ANSWERS

SEARCH TIME: 00.00.03

=> d que l5; d l5

L5 1 SEA FILE=REGISTRY ABB=ON PLU=ON 111-46-6

L5 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS

RN 111-46-6 REGISTRY

CN Ethanol, 2,2'-oxybis- (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Diethylene glycol (8CI)

OTHER NAMES:

CN .beta.,.beta.'-Dihydroxydiethyl ether
 CN 1,5-Dihydroxy-3-oxapentane
 CN 2,2'-Oxybis[ethanol]
 CN 2,2'-Oxydiethanol
 CN 2,2'-Oxyethanol
 CN 2-(2-Hydroxyethoxy)ethanol
 CN 2-Hydroxyethoxyethanol
 CN 3-Oxapentamethylene-1,5-diol
 CN 3-Oxapentane-1,5-diol
 CN Bis(.beta.-hydroxyethyl) ether
 CN Bis(2-hydroxyethyl) ether
 CN Brecolane NDG
 CN Deactivator E
 CN DEG
 CN Dicol
 CN Digenos
 CN Diglycol
 CN Digol
 CN Dissolvant APV
 CN Ethylene diglycol
 CN TL4N
 FS 3D CONCORD
 DR 4669-26-5
 MF C4 H10 O3
 CI COM
 LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS,
 BIOSIS, BIOTECHNO, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN,
 CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHM, CSNB, DDFU,
 DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2,
 ENCOMPPAT, ENCOMPPAT2, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB,
 IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*,
 SPECINFO, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**, TSCA**
 (**Enter CHEMLIST File for up-to-date regulatory information)

HO-CH₂-CH₂-O-CH₂-CH₂-OH

- may be represented as a
separate structure,

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10535 REFERENCES IN FILE CA (1962 TO DATE)
 1320 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 10552 REFERENCES IN FILE CAPLUS (1962 TO DATE)
 7 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

(i.e. not attached to
B.D or x)

=> d que.110

| | | | | | |
|------|-------|-------------------|--------|--------|----------------------|
| L6 (| 16) | SEA FILE=REGISTRY | ABB=ON | PLU=ON | 49876.1/RID |
| L7 (| 2103) | SEA FILE=REGISTRY | ABB=ON | PLU=ON | 10471.4/RID |
| L8 (| 351) | SEA FILE=REGISTRY | ABB=ON | PLU=ON | 8866.2/RID |
| L9 (| 5) | SEA FILE=REGISTRY | ABB=ON | PLU=ON | 10471.20/RID |
| L10 | 2475 | SEA FILE=REGISTRY | ABB=ON | PLU=ON | L7 OR L6 OR L8 OR L9 |

} covers
all 4
ring structures
for dyes

=> d his 111-112

(FILE 'REGISTRY' ENTERED AT 11:15:09 ON 24 FEB 2003)

L11 30 S L4 AND L10
L12 0 S L5 AND L10

=> fil hcaplus

FILE 'HCAPLUS' ENTERED AT 11:22:54 ON 24 FEB 2003

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diethyl ether and linker together in one structure
diethyl ether and diethylene glycol as separate components in one structure.

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FILE COVERS 1907 - 24 Feb 2003 VOL 138 ISS 9

FILE LAST UPDATED: 23 Feb 2003 (20030223/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

'OBI' IS DEFAULT SEARCH FIELD FOR 'HCAPLUS' FILE

=> d his l13-

(FILE 'HCAPLUS' ENTERED AT 11:19:38 ON 24 FEB 2003)

L13 15 S L11
L14 10555 S L5
L15 2449 S L10
L16 3 S L14 AND L15
L17 19022 S BIOMOLEC? OR BIOMARKER?
L18 2 S L15 AND L17
L19 4257 S LINKER#
L20 6 S L19 AND L15

FILE 'REGISTRY' ENTERED AT 11:22:16 ON 24 FEB 2003

FILE 'HCAPLUS' ENTERED AT 11:22:54 ON 24 FEB 2003

=> d .ca hitstr l13 1-15;d .ca hitstr l16 1-3;d .ca hitstr l18 1-2;d .ca hitstr l20 1-6

L13 ANSWER 1 OF 15 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:600268 HCAPLUS

DOCUMENT NUMBER: 137:284703

TITLE: Self-Assembly of Liquid Crystal Semiconductor Molecules at the Air/Water Interface

AUTHOR(S): Sui, Guodong; Orbulescu, Jhony; Mabrouki, Mustapha; Micic, Miodrag; Leblanc, Roger M.; Liu, Shenggao; Cormier, Russell A.; Gregg, Brian A.

CORPORATE SOURCE: Department of Chemistry, University of Miami, Coral Gables, FL, 33124, USA

SOURCE: Journal of Physical Chemistry B (2002), 106(36),

9335-9340

CODEN: JPCBFK; ISSN: 1520-6106

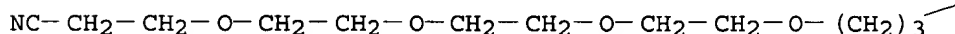
PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

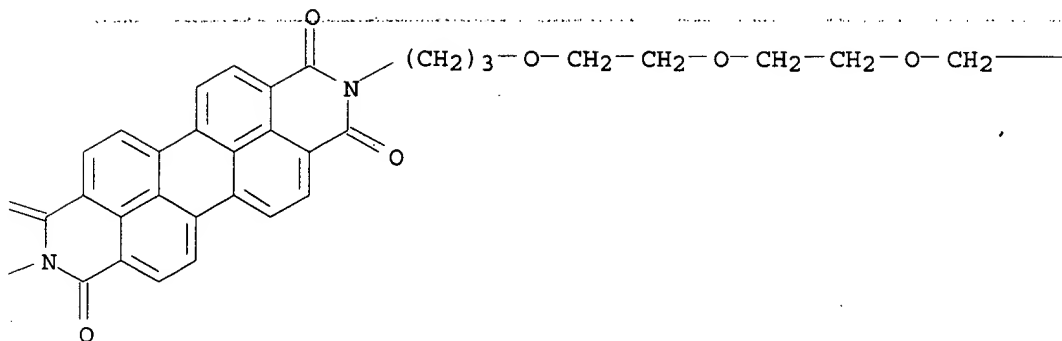
LANGUAGE: English

- AB Self-assembly property of a new liq. cryst. perylene diimide deriv., N,N'-bis[3-[2-[2-[2-(2-cyanoethoxy)ethoxy]ethoxy]ethoxy]propyl]perylen-3,4:9,10-tetracarboxyldiimide (PPE4CN), was studied at the air/H₂O interface by epifluorescence microscopy and on mica by environmental SEM (ESEM) and at. force microscopy (AFM). The self-assembly process started at surface pressure 5 mN/m. Mol. orientation changes of the PPE4CN mols. accompanied the self-assembly process at the air/H₂O interface. The mol. orientation changed from face-on to edge-on orientation in the self-assembly process. These orientation changes were strongly supported by the anal. of the surface pressure-area isotherms, and by the topog. measurements at micro and nanoscale levels, including ESEM and AFM microscopies.
- CC 66-1 (Surface Chemistry and Colloids)
Section cross-reference(s): 75
- IT 401606-54-0
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(self-assembly of PPE4CN liq. crystal semiconductor mols. at air/water interface)
- IT 401606-54-0
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(self-assembly of PPE4CN liq. crystal semiconductor mols. at air/water interface)
- RN 401606-54-0 HCAPLUS
- CN 4,7,10,13-Tetraoxahexadecanenitrile, 16,16'-(1,3,8,10-tetrahydro-1,3,8,10-tetraoxanthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-2,9-diyl)bis- (9CI)
(CA INDEX NAME)

PAGE 1-A



PAGE 1-B



PAGE 1-C

 $-CH_2-O-CH_2-CH_2-CN$

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 2 OF 15 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:590897 HCAPLUS

DOCUMENT NUMBER: 137:286276

TITLE: Edge transfer lithography of molecular and nanoparticle materials

AUTHOR(S): Cherniavskaya, Oksana; Adzic, Aleksandar; Knutson, Carl; Gross, Benjamin J.; Zang, Ling; Liu, Ruchuan; Adams, David M.

CORPORATE SOURCE: Department of Chemistry, Columbia University, New York, NY, 10027, USA

SOURCE: Langmuir (2002), 18(18), 7029-7034
CODEN: LANGD5; ISSN: 0743-7463

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A simple and general method which we call edge transfer lithog. has been developed for large-area patterning of mol. and nanoparticle materials with line-widths as small as 60 nm. The procedure employs std. "ink" and "stamp" microcontact printing techniques and takes advantage of the intrinsic topog. character of micropatterned elastomeric stamps and discontinuous dewetting behavior of ink solns. to selectively apply ink within the recesses of the stamp. In this way, mols. or particles are delivered from the stamp to a solid substrate of interest selectively along the edges of the stamp features. Siloxane self-assembled monolayers (SAMs) and titanium dioxide (TiO₂) nanoparticle materials are directly patterned on glass substrates at nanometer resolu. Alkyl siloxane patterned SAM surfaces are used as a template structure for the guided self-assembly of mol. and nanoparticle materials. The surfaces are characterized by lateral force microscopy and noncontact at. force microscopy.

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 199606-43-4

RL: NUU (Other use, unclassified); USES (Uses)
 (self-assembly of liq. cryst. perylene diimide on alkylsilane SAM
 micropatterns produced by edge transfer lithog.)

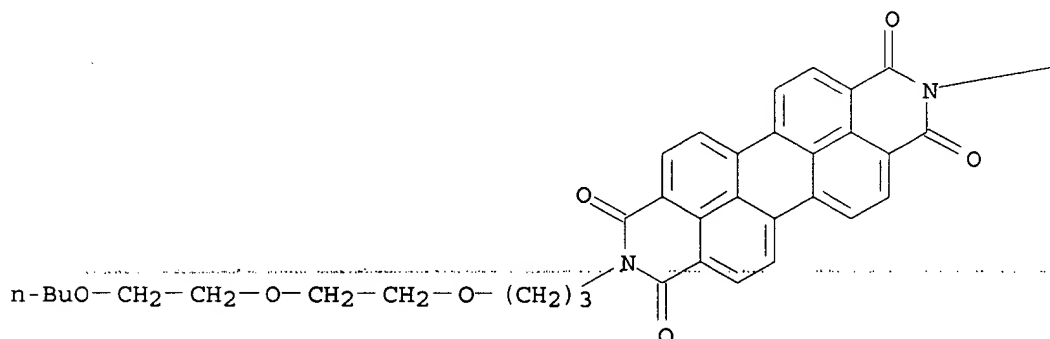
IT 199606-43-4

RL: NUU (Other use, unclassified); USES (Uses)
 (self-assembly of liq. cryst. perylene diimide on alkylsilane SAM
 micropatterns produced by edge transfer lithog.)

RN 199606-43-4 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
 2,9-bis[3-[2-(2-butoxyethoxy)ethoxy]propyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

—(CH₂)₃—O—CH₂—CH₂—O—CH₂—CH₂—OBu-n

REFERENCE COUNT: 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 3 OF 15 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:47589 HCAPLUS

DOCUMENT NUMBER: 136:103835

TITLE: Dye compounds having terminal hydroxy, carboxylic
 acid/ester or amino group, their production and their
 use

INVENTOR(S): Kaul, Bansi Lal; Graciet, Jean-Christophe

PATENT ASSIGNEE(S): Clariant Finance (Bvi) Limited, Virgin I. (Brit.)

SOURCE: Eur. Pat. Appl., 10 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|-----------------|----------|
| EP 1172418 | A2 | 20020116 | EP 2001-810694 | 20010712 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | | |
| US 6462128 | B1 | 20021008 | US 2000-616356 | 20000714 |
| JP 2002097381 | A2 | 20020402 | JP 2001-213191 | 20010713 |

US 2002112297 A1 20020822 US 2001-905803 20010713
 PRIORITY APPLN. INFO.: US 2000-616356 A 20000714
 GB 2001-4236 A 20010221

OTHER SOURCE(S): MARPAT 136:103835

AB This invention relates to new fluorescent or non-fluorescent dye compds. having a terminal hydroxy, carboxylic acid/ester or amino group and a process for their prepn. The new fluorescent or non-fluorescent dye compds. are useful as colorants for prepg. colored synthetic polymer resins, for dyeing or printing homo- or mixed synthetic, semi-synthetic or natural polymers or substrates or for prepg. inks. The dye compds. provide excellent properties, esp. high temp. stability and easy applicability, with the functional groups providing a means for covalent bonding to the substrate. In an example, benzo[k,l]thioxanthene-3,4-dicarboxylic anhydride was imidized with 6-aminohexanol to give an orange dye having a 6-hydroxyhexyl group.

IC ICM C09B069-10

ICS C09B005-62; C09B057-14

ICA C08K005-3437; C09D011-02

CC 41-5 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)

Section cross-reference(s): 27, 28

IT 289039-13-0P 389066-83-5P 389066-86-8P 389066-87-9P 389066-88-0P
 389569-34-0P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(red dye; prodn. of dyes having terminal hydroxy, carboxylic acid/ester or amino group)

IT 389569-34-0P

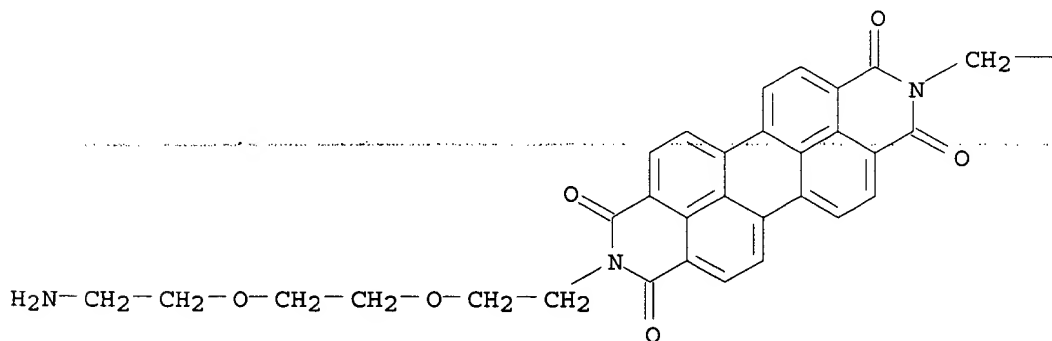
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(red dye; prodn. of dyes having terminal hydroxy, carboxylic acid/ester or amino group)

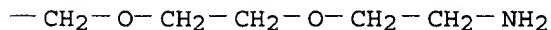
RN 389569-34-0 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2,9-bis[2-[2-(2-aminoethoxy)ethoxy]ethyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



L13 ANSWER 4 OF 15 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:22691 HCAPLUS

DOCUMENT NUMBER: 136:208042

TITLE: Self-Organizing Liquid Crystal Perylene Diimide Thin Films: Spectroscopy, Crystallinity, and Molecular Orientation

AUTHOR(S): Liu, Sheng-Gao; Sui, Guodong; Cormier, Russell A.; Leblanc, Roger M.; Gregg, Brian A.

CORPORATE SOURCE: National Renewable Energy Laboratory, Golden, CO, 80401, USA

SOURCE: Journal of Physical Chemistry B (2002), 106(6), 1307-1315

CODEN: JPCBFBK; ISSN: 1089-5647

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Three different liq. crystal (LC) perylene diimides were studied with respect to the optical and phys. characteristics of their thin films. Films were prepd. by spin-coating, vacuum evapn., and Langmuir-Blodgett (LB) techniques on substrates such as microscope glass, In-Sn oxide-coated glass and highly oriented pyrolytic graphite. Films were characterized by polarized optical microscopy, absorption and fluorescence emission spectroscopy, and x-ray diffraction. The self-organizing ability of the LC perylene diimides allows them to rapidly reach a stable, low-energy configuration, unlike many thin film materials, and reveals that they are driven to organize and orient in a highly specific fashion, independent of substrate or deposition method. The mols. tend to form a slipped stack arrangement that maximizes attractive .pi.-.pi. electronic interactions, with the .pi.-.pi. stacking axis oriented parallel to the substrate. Relative to the substrate plane, the LC 1 perylene cores are tilted .apprx.47.degree. along the stacking axis and .apprx.58.degree. perpendicular to this direction. The two other LCs have similar structures. An anal. of the intermol. electronic and steric interactions, and of the interactions between the mols. and the substrates, is proposed to explain why this is such a strongly preferred orientation. The implications for the potential use of such mols. in electronic and photovoltaic applications is discussed.

CC 75-11 (Crystallography and Liquid Crystals)

Section cross-reference(s): 28, 73, 74

IT 401612-72-4P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. and reaction with acrylonitrile)

IT 401606-54-0P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

(prepn. and self-organizing liq. crystal perylene diimide thin films: spectroscopy, crystallinity, and mol. orientation)

IT 67075-37-0 199606-43-4 199606-46-7

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)

(self-organizing liq. crystal perylene diimide thin films: spectroscopy, crystallinity, and mol. orientation)

IT 401612-72-4P

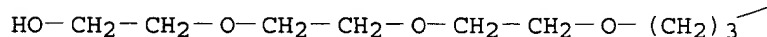
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. and reaction with acrylonitrile)

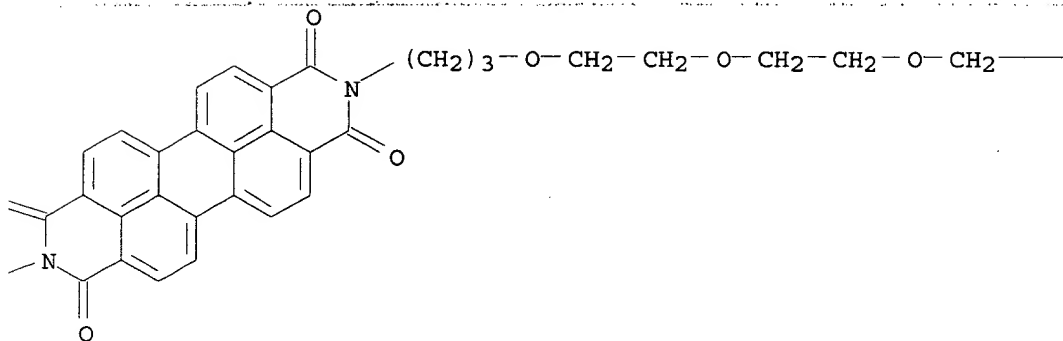
RN 401612-72-4 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2,9-bis[3-[2-[2-(2-hydroxyethoxy)ethoxy]ethoxy]propyl]- (9CI) (CA INDEX
NAME)

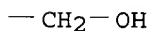
PAGE 1-A



PAGE 1-B



PAGE 1-C



IT 401606-54-0P

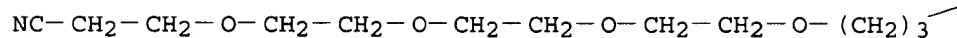
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

(prepn. and self-organizing liq. crystal perylene diimide thin films: spectroscopy, crystallinity, and mol. orientation)

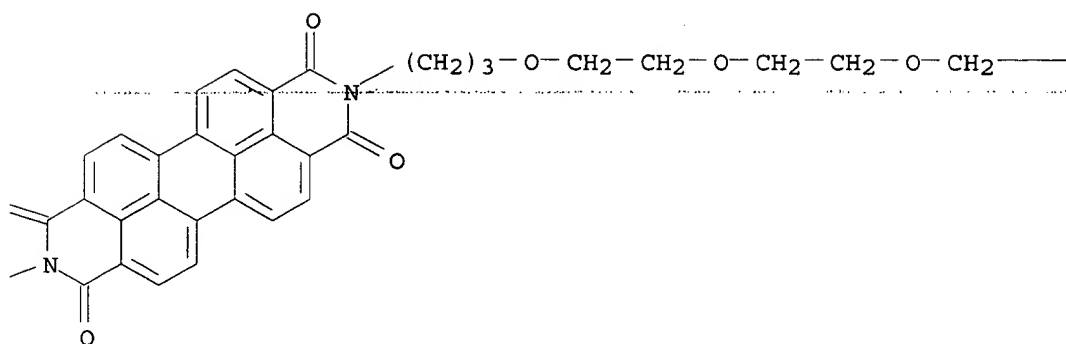
RN 401606-54-0 HCAPLUS

CN 4,7,10,13-Tetraoxahexadecanenitrile, 16,16'-(1,3,8,10-tetrahydro-1,3,8,10-tetraoxanthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-2,9-diyl)bis- (9CI) (CA INDEX NAME)

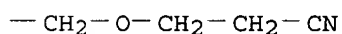
PAGE 1-A



PAGE 1-B

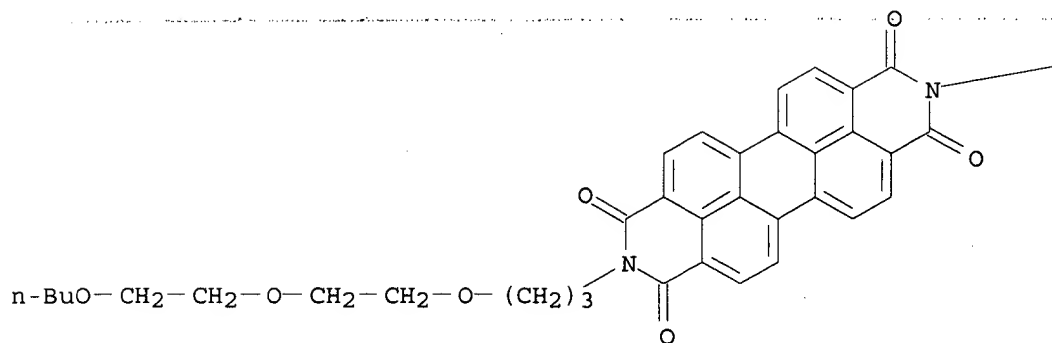


PAGE 1-C

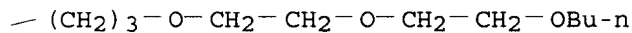


IT 199606-43-4 199606-46-7
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP
 (Physical process); PROC (Process)
 (self-organizing liq. crystal perylene diimide thin films:
 spectroscopy, crystallinity, and mol. orientation)
 RN 199606-43-4 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
 2,9-bis[3-[2-(2-butoxyethoxy)ethoxy]propyl] - (9CI) (CA INDEX NAME)

PAGE 1-A

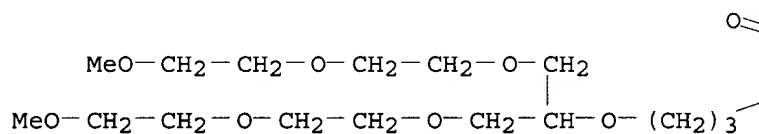


PAGE 1-B

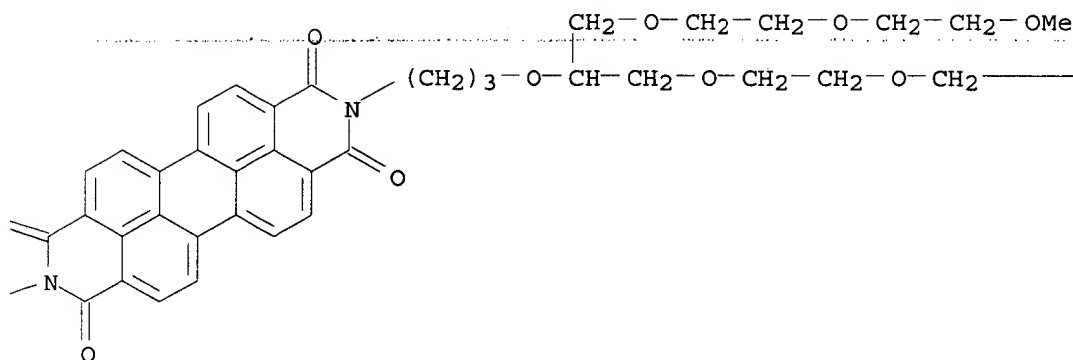


RN 199606-46-7 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
 2,9-bis[4-[[2-[2-(2-methoxyethoxy)ethoxy]methyl]-4,7,10,13-
 tetraoxatetradec-1-yl]]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



PAGE 1-C

—CH₂—OMe

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 5 OF 15 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:693662 HCAPLUS

DOCUMENT NUMBER: 135:269657

TITLE: Biomarkers for the labeling, visual detection and quantification of biomolecules

INVENTOR(S): Bevers, Susan Ann; Andrade, Rodrigo Bohn; Alexandrov, Kiril Stefan; Zdraveski, Zoran Zare

PATENT ASSIGNEE(S): Genigma Corporation, USA

SOURCE: PCT Int. Appl., 54 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---------------|--|----------|-----------------|----------|
| WO 2001069254 | A2 | 20010920 | WO 2001-US7885 | 20010313 |
| WO 2001069254 | A3 | 20020530 | | |
| W: | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | |
| RW: | GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | |
| US 2002012947 | A1 | 20020131 | US 2001-804893 | 20010313 |
| EP 1266222 | A2 | 20021218 | EP 2001-918584 | 20010313 |
| R: | AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR | | | |

PRIORITY APPLN. INFO.:

US 2000-189264P P 20000314

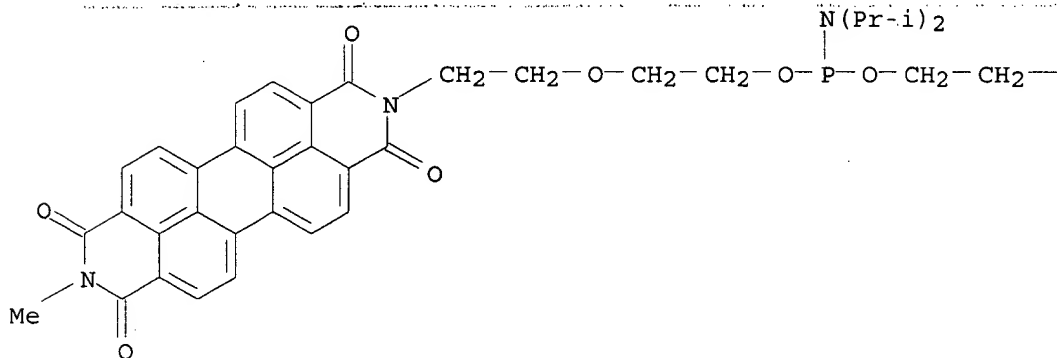
US 2000-209188P P 20000605

WO 2001-US7885 W 20010313

OTHER SOURCE(S): MARPAT 135:269657

- AB This invention relates to the detection of biomols. In particular, the invention relates to biomarkers for the labeling, visual detection and quantification of biomols. The invention provides visually detectable biomols. and reagents for their prepn., as well as methods for visually detecting a biomol. and for detg. the size of a biomol. The labeled biomols. of the invention are intensely colored and can be readily obsd. by visual inspection, without prior illumination or chem. or enzymic activation.
- IC ICM G01N033-532
ICS C12Q001-68; G01N033-52; G01N033-68; C09B062-00
- CC 9-14 (Biochemical Methods)
- IT 198-55-ODP, Perylene, derivs. 361335-58-2P 361335-59-3P 361335-60-6P 361335-61-7P 361335-62-8P
RL: ARG (Analytical reagent use); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(biomarkers for labeling, visual detection and quantification of biomols.)
- IT 118129-60-5P, 1,7-Dibromoperylene-3,4,9,10-tetracarboxylic dianhydride 215297-17-9P 286014-33-3P 361335-63-9P 361335-64-0P 361335-65-1P 361335-67-3P 361335-69-5P 361335-71-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(biomarkers for labeling, visual detection and quantification of biomols.)
- IT 361335-58-2P 361335-59-3P 361335-60-6P
RL: ARG (Analytical reagent use); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(biomarkers for labeling, visual detection and quantification of biomols.)
- RN 361335-58-2 HCAPLUS
- CN Phosphoramidous acid, bis(1-methylethyl)-, 2-cyanoethyl 2-[2-(3,8,9,10-tetrahydro-9-methyl-1,3,8,10-tetraoxoanthra[2,1,9-def:6,5,10-d'e'f']diisoquinolin-2(1H)-yl)ethoxy]ethyl ester (9CI) (CA INDEX NAME)

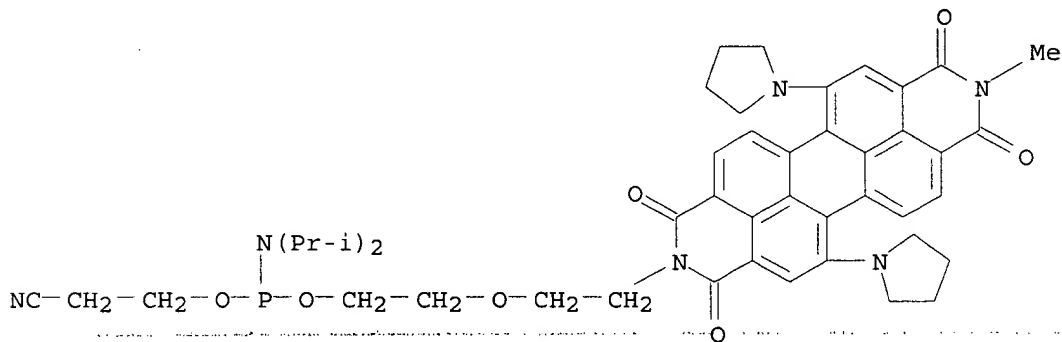
PAGE 1-A



—CN

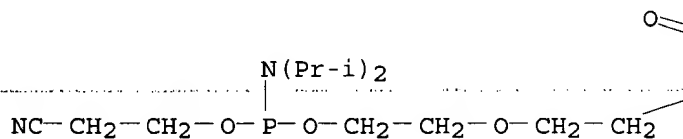
RN 361335-59-3 HCAPLUS

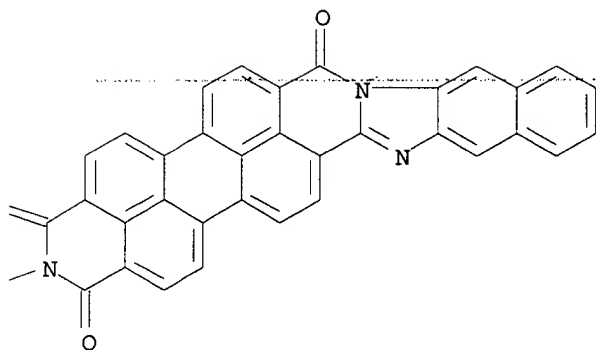
CN Phosphoramidous acid, bis(1-methylethyl)-, 2-cyanoethyl
 2-[2-(3,8,9,10-tetrahydro-9-methyl-1,3,8,10-tetraoxo-5,12-di-1-pyrrolidinylanthra[2,1,9-def:6,5,10-d'e'f']diisoquinolin-2(1H)-yl)ethoxy]ethyl ester (9CI) (CA INDEX NAME)



RN 361335-60-6 HCAPLUS

CN Phosphoramidous acid, bis(1-methylethyl)-, 2-cyanoethyl
 2-[2-(3,8-dihydro-1,3,8-trioxoisoquino[6',5',4':10,5,6]anthra[2,1,9-def]naphth[2',3':4,5]imidazo[2,1-a]isoquinolin-2(1H)-yl)ethoxy]ethyl ester (9CI) (CA INDEX NAME)





IT 286014-33-3P 361335-64-0P 361335-67-3P

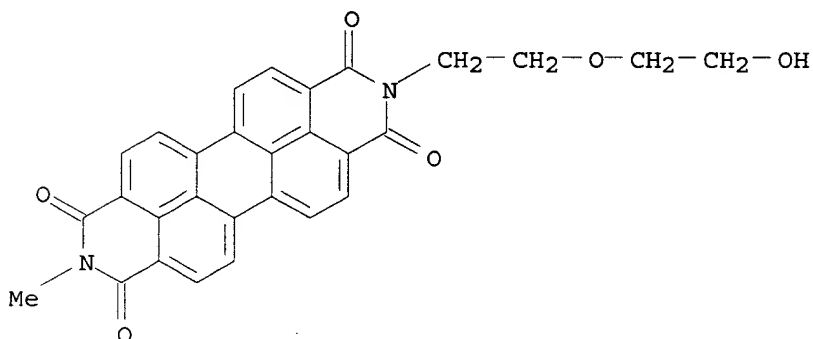
361335-69-5P 361335-71-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(biomarkers for labeling, visual detection and quantification of biomols.)

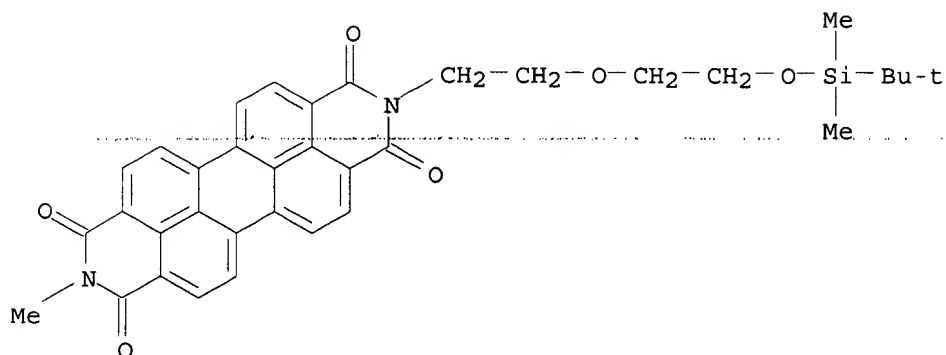
RN 286014-33-3 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2-[2-(2-hydroxyethoxy)ethyl]-9-methyl- (9CI) (CA INDEX NAME)



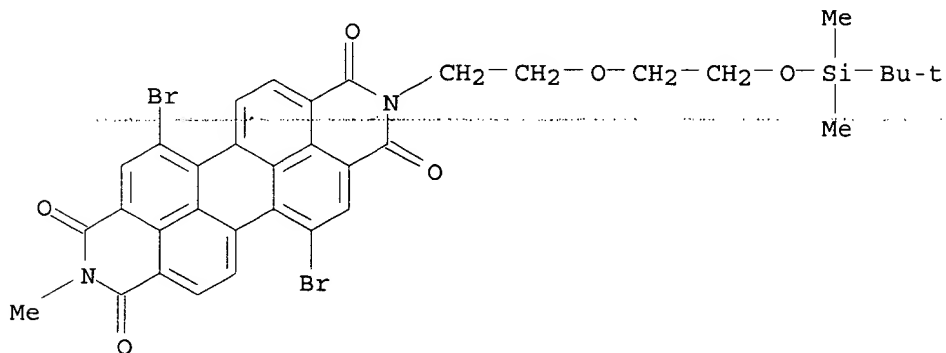
RN 361335-64-0 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2-[2-[2-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]-9-methyl- (9CI) (CA INDEX NAME)



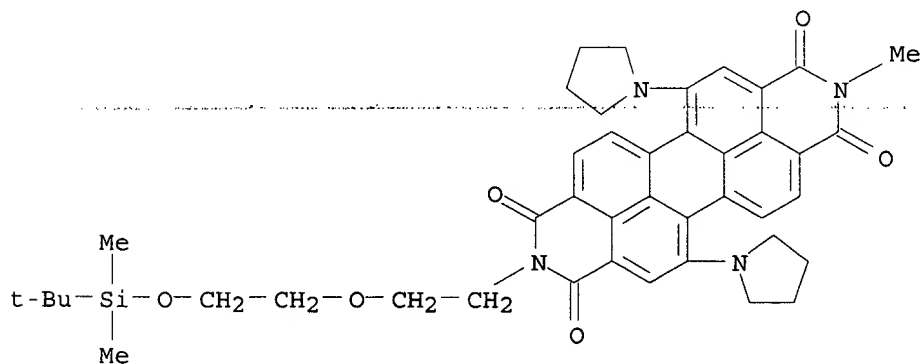
RN 361335-67-3 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
5,12-dibromo-2-[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]-
9-methyl- (9CI) (CA INDEX NAME)



RN 361335-69-5 HCAPLUS

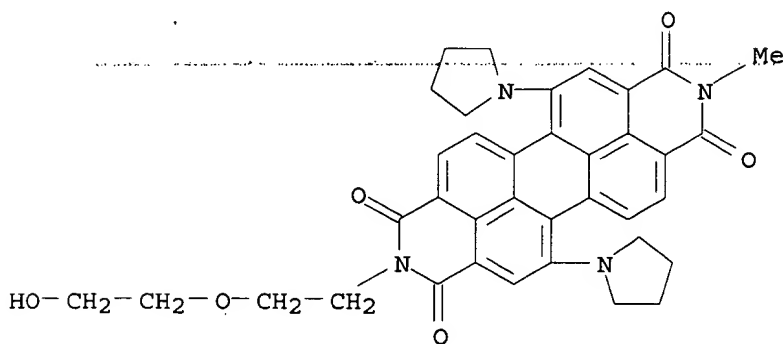
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2-[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]-9-methyl-5,12-
di-1-pyrrolidinyl- (9CI) (CA INDEX NAME)



RN 361335-71-9 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,

2-[2-(2-hydroxyethoxy)ethyl]-9-methyl-5,12-di-1-pyrrolidinyl- (9CI) (CA INDEX NAME)



L13 ANSWER 6 OF 15 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:527854 HCAPLUS

DOCUMENT NUMBER: 135:265073

TITLE: Doping molecular semiconductors. n-Type doping of a liquid crystal perylene diimide

AUTHOR(S): Gregg, Brian A.; Cormier, Russell A.

CORPORATE SOURCE: National Renewable Energy Laboratory, Golden, CO, 80401, USA

SOURCE: Journal of the American Chemical Society (2001), 123(32), 7959-7960

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A n-type dopant was synthesized for the liq. crystal and mol. semiconductor perylene diimide deriv. (PPEEB). The zwitterionic dopant is a reduced (for n-type) or oxidized (for p-type) deriv. of the host mol. A scheme for the synthesis of the dopant precursor is given. To produce the dopant, the dopant precursor was dispersed in dry THF at room temp. under inert-gas atm. followed by addn. of Na to reduce the PPEEB and stirring for several hours. Then, a series of n-doped PPEEB films was fabricated by adding aliquots of the dopant soln. to solns. of PPEEB in THF followed by spin coating them on Pt interdigitated electrodes. These films were characterized by I-V curves and cond. measurements as a function of the dopant concn.

CC 76-2 (Electric Phenomena)

Section cross-reference(s): 28, 75

IT 199606-43-4

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)

(PPEEB; n-type doping of a liq.-cryst. mol. semiconductor perylene diimide and its elec. characterization)

IT 361459-33-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(precursor; prepn. of n-type and p-type dopants for liq.-cryst. mol. semiconductor perylene diimide)

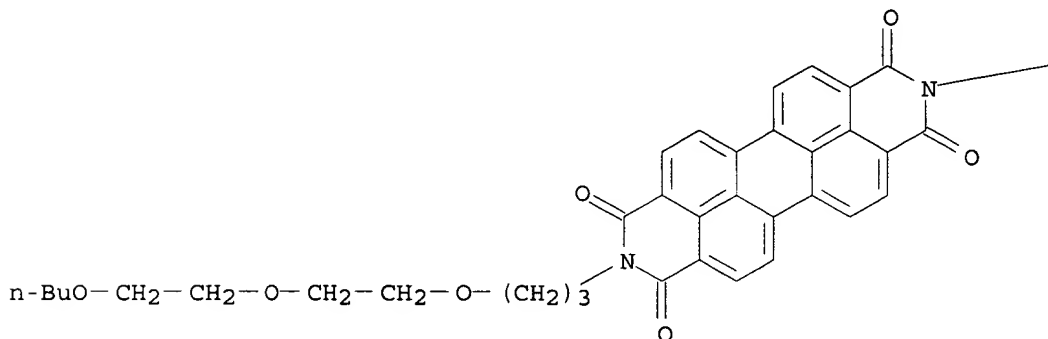
IT 361459-34-9P

RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

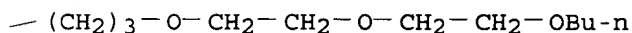
(prepn. of n-type and p-type dopants for liq.-cryst. mol. semiconductor

perylene diimide)
 IT 199606-43-4
 RL: PEP (Physical, engineering or chemical process); PRP (Properties);
 PROC (Process)
 (PPEEB; n-type doping of a liq.-cryst. mol. semiconductor perylene
 diimide and its elec. characterization)
 RN 199606-43-4 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
 2,9-bis[3-[2-(2-butoxyethoxy)ethoxy]propyl]- (9CI) (CA INDEX NAME)

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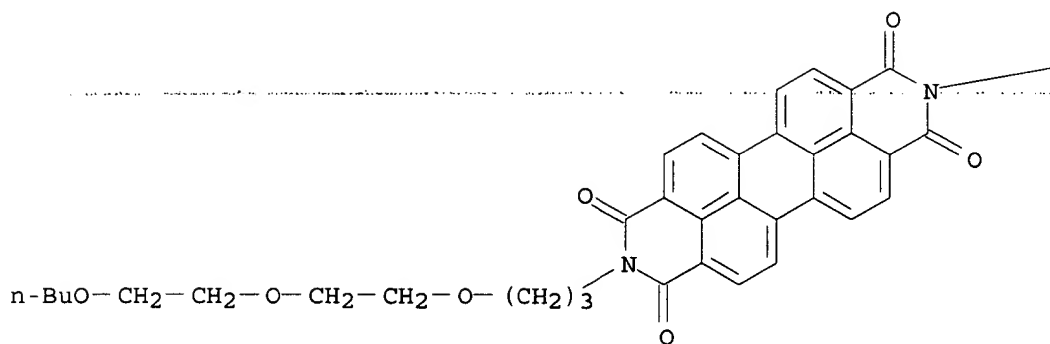


PAGE 1-B



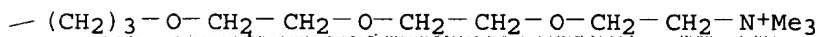
IT 361459-33-8P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (precursor; prepn. of n-type and p-type dopants for liq.-cryst. mol.
 semiconductor perylene diimide)
 RN 361459-33-8 HCAPLUS
 CN Ethanaminium, 2-[2-[2-[3-[9-[3-[2-(2-butoxyethoxy)ethoxy]propyl]-3,8,9,10-
 tetrahydro-1,3,8,10-tetraoxoanthra[2,1,9-def:6,5,10-d'e'f']diisoquinolin-
 2(1H)-yl]propoxy]ethoxy]ethoxy]-N,N,N-trimethyl-, chloride (9CI) (CA
 INDEX NAME)

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● Cl⁻

PAGE 1-B



IT 361459-34-9P

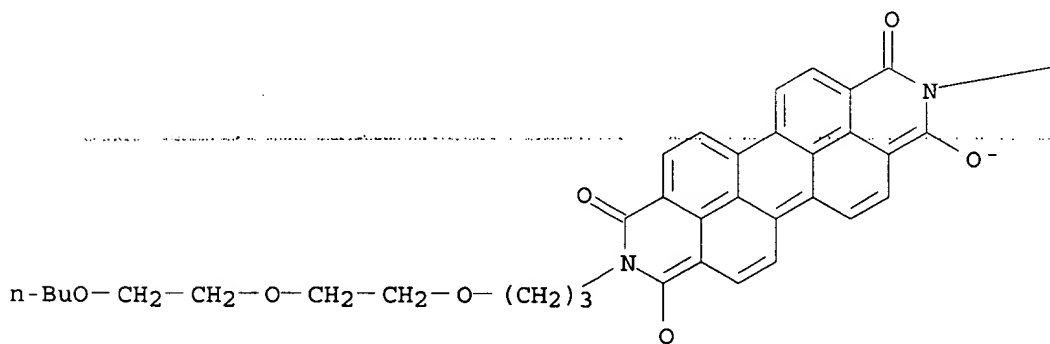
RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

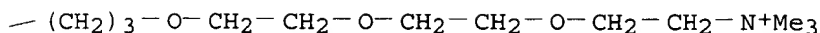
(prepn. of n-type and p-type dopants for liq.-cryst. mol. semiconductor perylene diimide)

RN 361459-34-9 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinolin-1-yloxy, 2-[3-[2-(2-butoxyethoxy)ethoxy]propyl]-9-(13,13-dimethyl-4,7,10-trioxa-13-azoniatetradec-1-yl)-2,3,8,9-tetrahydro-10-hydroxy-3,8-dioxo-, inner salt (9CI) (CA INDEX NAME)

PAGE 1-A





REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 7 OF 15 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:512711 HCAPLUS

DOCUMENT NUMBER: 133:121711

TITLE: Pigment preparations containing several perylene derivatives

INVENTOR(S): Weber, Joachim; Urban, Manfred; Opravil, Manfred; Dietz, Erwin

PATENT ASSIGNEE(S): Clariant G.m.b.H., Germany

SOURCE: Ger. Offen., 31 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

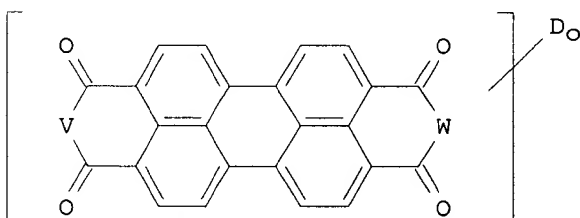
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|--------------------|----------|
| DE 19902907 | A1 | 20000727 | DE 1999-19902907 | 19990126 |
| EP 1024177 | A2 | 20000802 | EP 2000-100711 | 20000114 |
| EP 1024177 | A3 | 20020320 | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | | |
| JP 2000297224 | A2 | 20001024 | JP 2000-16269 | 20000125 |
| US 6413309 | B1 | 20020702 | US 2000-491318 | 20000125 |
| PRIORITY APPLN. INFO.: | | | DE 1999-19902907 A | 19990126 |

OTHER SOURCE(S): MARPAT 133:121711

GI



AB The preps., contg. (a) .gtoreq.1 org. pigment, (b1) .gtoreq.1 pigment dispersant of the formula I [V = W = NZ; each Z = amino- or OH-contg. org group [1 Z may be H, OH, NH₂, (un)substituted Ph or C1-20 alkyl]; o = 0], and (b2) .gtoreq.1 acid group-contg. perylene pigment dispersant [I; each D = Cl, Br; V = O, NR₁, W; R₁ = H, (un)substituted Ph or C1-20 alkyl; W = NR₂Y- X+; R₂ = spacer group; X = H, 1 equiv metal ion; Y = CO₂, SO₃; o = 0-6], have favorable rheol. and coloristic characteristics. Thus, I [V = NMe, W = N(CH₂)₂SO₃H; o = 0] (II) and I [V = NMe, W = N(CH₂)₃NH(CH₂)₂NH(CH₂)₃NH₂; o = 0] (III) were prepd. by condensing I (V = NMe, W = O; o = 0) with taurine and [H₂N(CH₂)₃NHCH₂]₂, resp. A mixt. of

10 parts C.I. Pigment Red 179 with 0.45 part each of II and III was used as the base for a high-solids transparent coating with good rheol.

IC ICM C09B067-20

CC 42-6 (Coatings, Inks, and Related Products)

Section cross-reference(s): 25

IT 85224-18-6P 134993-64-9P, N,N'-Bis(2-sulfoethyl)-3,4,9,10-perylenetetracarboxylic diimide 135934-43-9P 143992-60-3P, N,N'-Bis(2-hydroxypropyl)-3,4,9,10-perylenetetracarboxylic diimide 162065-10-3P, N,N'-Bis(2-carboxyethyl)-3,4,9,10-perylenetetracarboxylic diimide 213130-95-1P 238755-69-6P 238755-70-9P 238755-71-0P 238755-72-1P 238755-74-3P 238755-75-4P 238755-78-7P 238755-79-8P 238755-80-1P 286014-28-6P 286014-29-7P 286014-30-0P 286014-33-3P 286014-36-6P 286014-39-9P 286014-40-2P 286014-43-5P 286014-45-7P 286014-47-9P 286014-48-0P 286014-52-6P 286014-54-8P 286014-57-1P 286014-59-3P 286014-60-6P 286014-61-7P 286014-62-8P 286014-63-9P 286014-64-0P 286014-65-1P 286014-66-2P 286014-67-3P 286014-69-5P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(dispersant; pigment preps. contg. several perylene derivs.)

IT 238755-74-3P 238755-79-8P 238755-80-1P 286014-33-3P

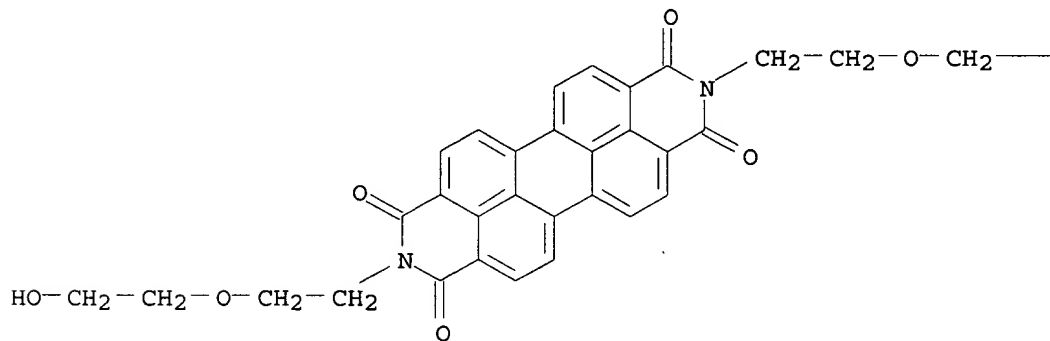
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(dispersant; pigment preps. contg. several perylene derivs.)

RN 238755-74-3 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2,9-bis[2-(2-hydroxyethoxy)ethyl]- (9CI) (CA INDEX NAME)

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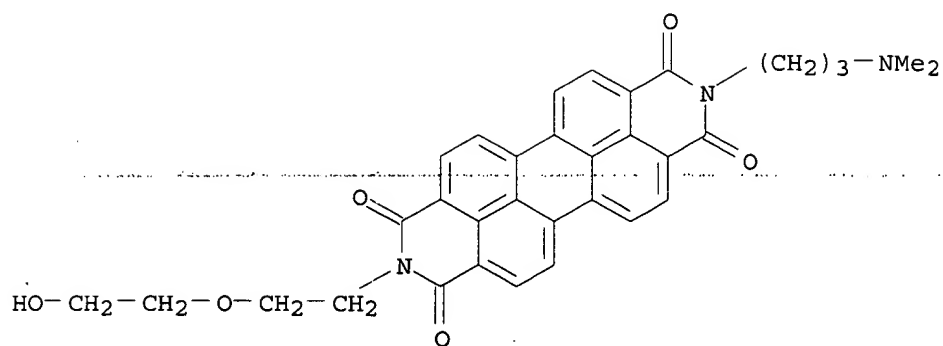


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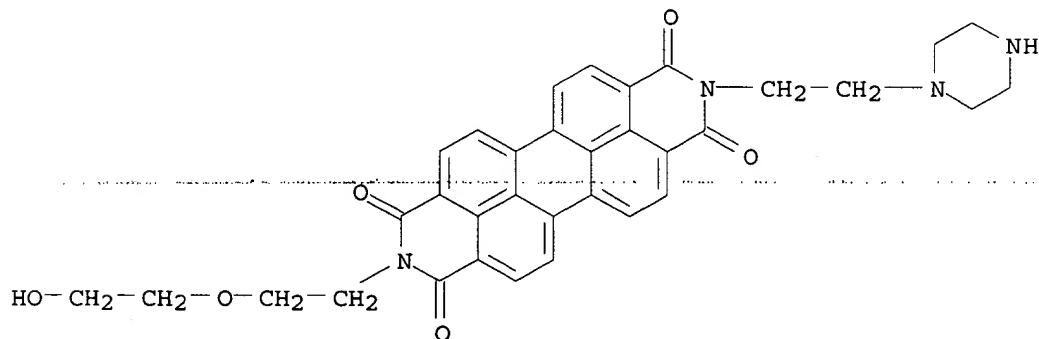
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RN 238755-79-8 HCAPLUS

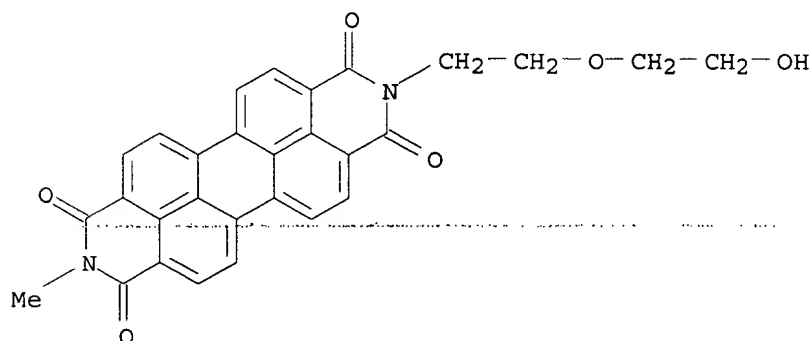
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2-[3-(dimethylamino)propyl]-9-[2-(2-hydroxyethoxy)ethyl]- (9CI) (CA INDEX NAME)



RN 238755-80-1 HCAPLUS
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2-[2-(2-hydroxyethoxy)ethyl]-9-[2-(1-piperazinyl)ethyl]- (9CI) (CA INDEX
NAME)



RN 286014-33-3 HCAPLUS
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2-[2-(2-hydroxyethoxy)ethyl]-9-methyl- (9CI) (CA INDEX NAME)



L13 ANSWER 8 OF 15 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:367285 HCAPLUS
DOCUMENT NUMBER: 133:193411
TITLE: Naphthalene- and Perylene-Based Linkers for the
Stabilization of Hairpin Triplexes

AUTHOR(S): Bevers, Susan; Schutte, Susan; McLaughlin, Larry W.
 CORPORATE SOURCE: Department of Chemistry Merkert Chemistry Center,
 Boston College, Chestnut Hill, MA, 02467, USA
 SOURCE: Journal of the American Chemical Society (2000),
 122(25), 5905-5915
 CODEN: JACSAT; ISSN: 0002-7863
 PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Planar perylene- and naphthalene-based diimide linkers can be employed to tether the Watson-Crick and the Hoogsteen strands of a DNA triplex, thus providing conjugates capable of targeting single-stranded nucleic acids with the formation of hairpin triplexes. The planar linkers are designed to bridge the terminal base triplet of the three-stranded complex and provide base-stacking interactions with all three residues. Sixteen complexes have been prep'd., eight with each linker, half with RNA (R) targets and half with DNA (D) targets. The conjugate sequences are composed of two strands of DNA, two of 2'-O-Me RNA (M), or one of each. In comparison to similar complexes formed with a hexa(ethylene glycol) linker, the planar linkers enhance the T_m values for the complexes by as much as 28 .degree.C with .DELTA.G values indicating as much as 12.3 kcal/mol of stabilization relative to the simple glycol linker. All sixteen complexes have been characterized by T_m measurements and .DELTA.G detns. That .pi.-stacking interactions are present between the linkers, and the nucleobases can be inferred from the quenching of the perylene fluorescence upon complex formation, and the observation of an absorbance vs temp. transition for the naphthalene-based linker at 383 nm and for the perylene-based linker monitored at 537 nm.

CC 33-10 (Carbohydrates)

Section cross-reference(s): 22

IT 164932-87-0P 215297-15-7P 215297-16-8P 215297-17-9P
 215297-18-0P 215297-19-1P 215297-20-4P
 215297-21-5P 215297-22-6P 215514-42-4P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(naphthalene- and perylene-based linkers for the stabilization of DNA and RNA hairpin triplexes)

IT 215297-18-0P 215297-19-1P 215297-20-4P
 215297-21-5P 215297-22-6P

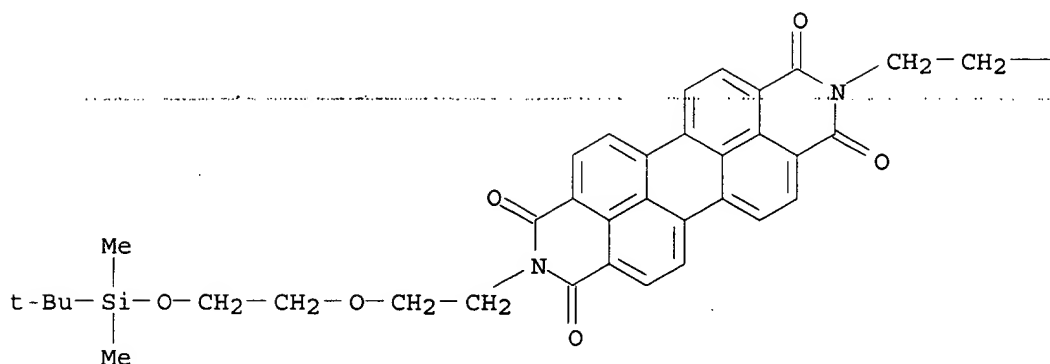
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(naphthalene- and perylene-based linkers for the stabilization of DNA and RNA hairpin triplexes)

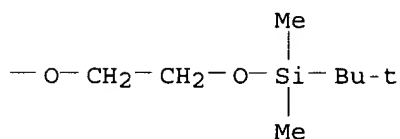
RN 215297-18-0 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
 2,9-bis[2-[2-[[[1,1-dimethylethyl]dimethylsilyl]oxy]ethoxy]ethyl]- (9CI)
 (CA INDEX NAME)

PAGE 1-A

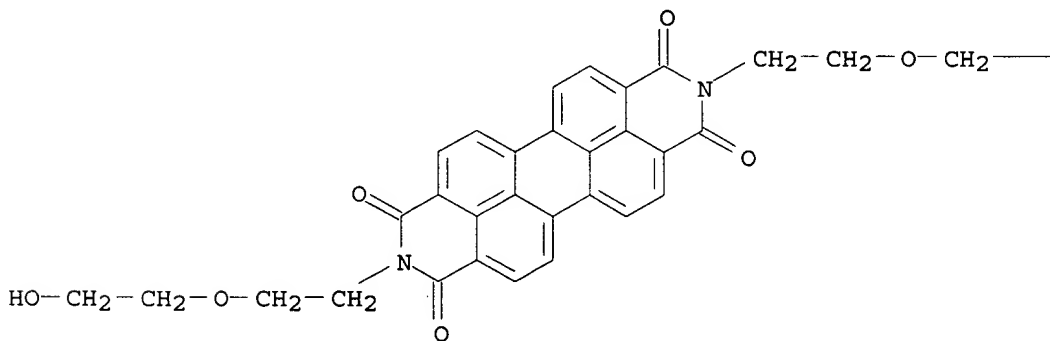


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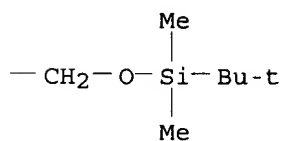


RN 215297-19-1 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
 2-[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]-9-[2-(2-
 hydroxyethoxy)ethyl] - (9CI) (CA INDEX NAME)

PAGE 1-A



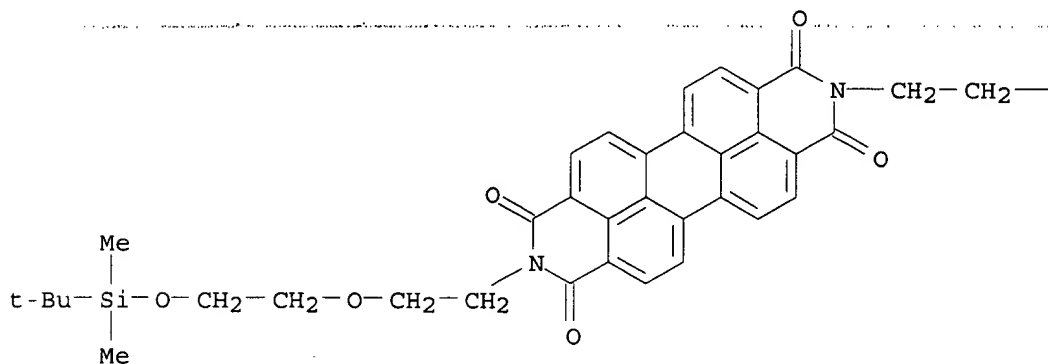
PAGE 1-B



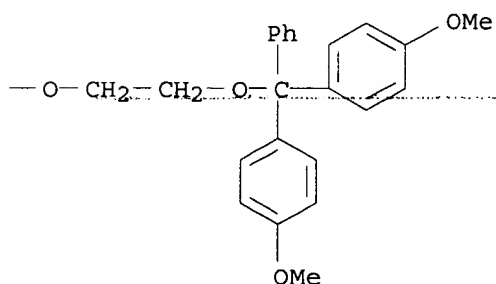
RN 215297-20-4 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,

2-[2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxy]ethyl]-9-[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]- (9CI) (CA INDEX NAME)

PAGE 1-A

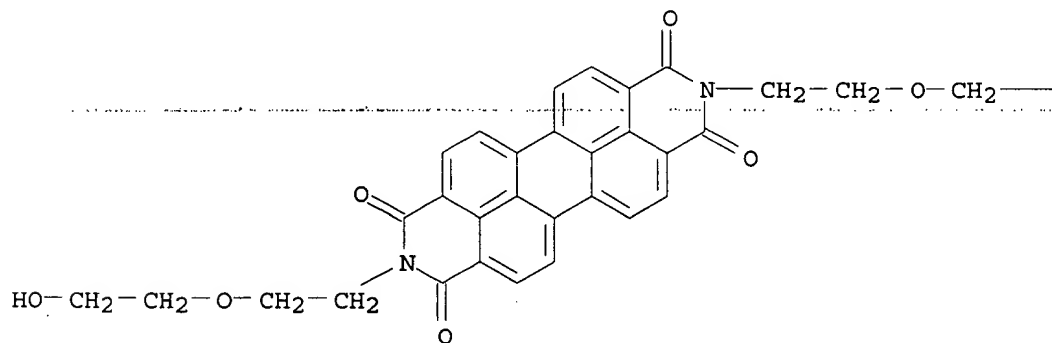


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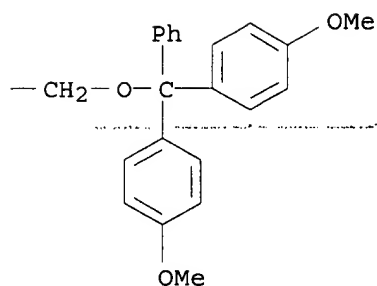


RN 215297-21-5 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
 2-[2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxy]ethyl]-9-[2-(2-hydroxyethoxy)ethyl]- (9CI) (CA INDEX NAME)

PAGE 1-A

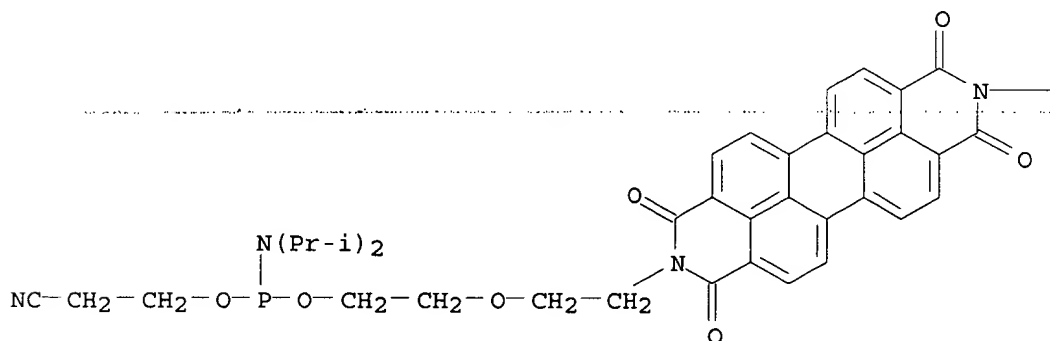


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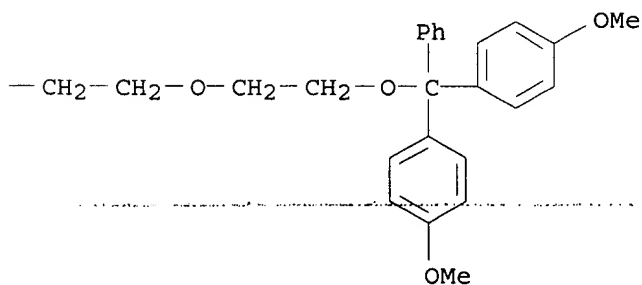


RN 215297-22-6 HCAPLUS
 CN Phosphoramidous acid, bis(1-methylethyl)-, 2-[2-[9-[2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxy]ethyl]-3,8,9,10-tetrahydro-1,3,8,10-tetraoxanthra[2,1,9-def:6,5,10-d'e'f']diisoquinolin-2(1H)-yl]ethoxy]ethyl 2-cyanoethyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 9 OF 15 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:557723 HCAPLUS

DOCUMENT NUMBER: 131:171551

TITLE: Perylene compounds, their production and their use as

INVENTOR(S): pigment dispersants
 Weber, Joachim; Urban, Manfred; Dietz, Erwin
 PATENT ASSIGNEE(S): Clariant G.m.b.H., Germany
 SOURCE: Eur. Pat. Appl., 32 pp.

CODEN: EPXXDW

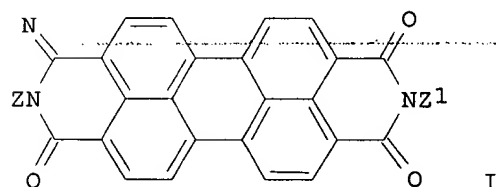
DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|-------------------|--------------------|----------|
| EP 937724 | A1 | 19990825 | EP 1999-102917 | 19990213 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | | |
| DE 19835757 | A1 | 20000217 | DE 1998-19835757 | 19980806 |
| JP 11286489 | A2 | 19991019 | JP 1999-41984 | 19990219 |
| US 6221150 | B1 | 20010424 | US 1999-255252 | 19990222 |
| PRIORITY APPLN. INFO.: | | | DE 1998-19807422 A | 19980221 |
| | | | DE 1998-19835757 A | 19980806 |
| OTHER SOURCE(S): | | MARPAT 131:171551 | | |
| GI | | | | |

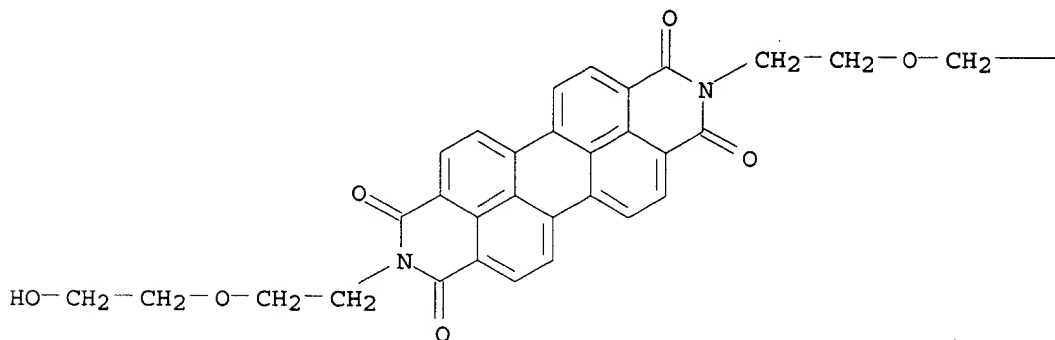


AB The perylenetetracarboxylic diimides [I; Z = (XY)q(X1Y1)r(X2NH)sH, where X, X1, X2 = optionally substituted C2-6-alkylene or C5-5-cycloalkylene; Y, Y1 = imino, oxy; q = 1-6; r, s = 0-6, whereby r and s are not simultaneously 0; Z1 = Z, Z2, Z3, where Z2 = (XO)t(X1O)qH (t = 0-6); Z3 = H, OH, amino, optionally substituted C1-6-alkyl] are obtained for use as dispersants in the prodn. and application of perylene and other pigment dispersions. I permit the use of pigment dispersions with lower viscosity and improved application properties. In an example, N-(2-hydroxyethyl)perylenetetracarboxylic monoanhydride monoimide was condensed with dipropylene triamine to give I [Z = HO(CH2)2; Z1 = (CH2)3NH(CH2)3NH], which was used in the aq. prepn. of C.I. Pigment Red 179 from perylenetetracarboxylic dianhydride and MeNH2.

IC ICM C07D471-06
 ICS C09B005-62; C09B067-22
 ICI C07D471-06, C07D221-00, C07D221-00
 CC 41-5 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)
 Section cross-reference(s): 42
 IT 59442-37-4P 135934-43-9P 143992-60-3P 238755-69-6P 238755-70-9P
 238755-71-0P 238755-72-1P 238755-73-2P 238755-74-3P
 238755-75-4P 238755-76-5P 238755-77-6P 238755-78-7P
 238755-79-8P 238755-80-1P
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(dispersant; perylenedicarboximides as dispersants for pigments)
 IT 238755-74-3P 238755-79-8P 238755-80-1P
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (dispersant; perylenedicarboximides as dispersants for pigments)
 RN 238755-74-3 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2,9-bis-[2-(2-hydroxyethoxy)ethyl]- (9CI) (CA INDEX NAME)

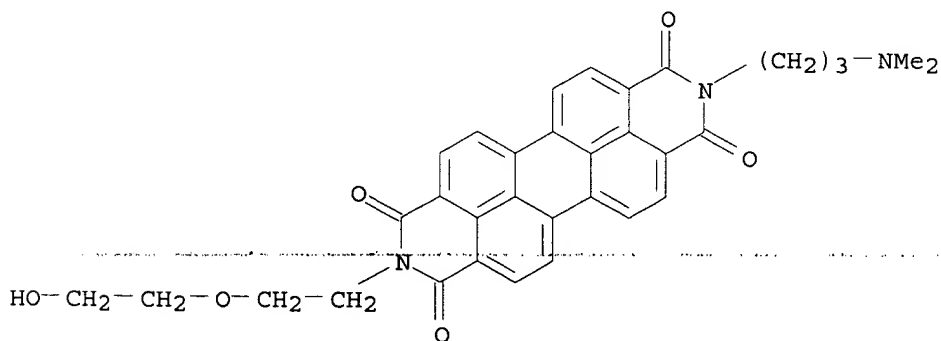
PAGE 1-A



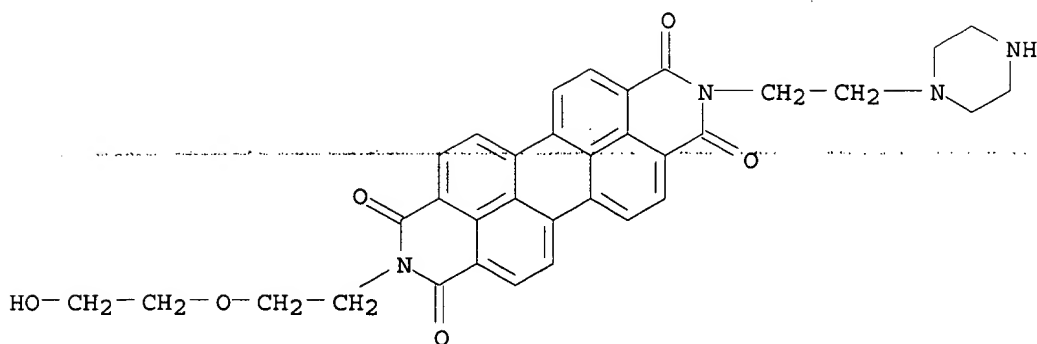
PAGE 1-B

-CH₂-OH

RN 238755-79-8 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2-[3-(dimethylamino)propyl]-9-[2-(2-hydroxyethoxy)ethyl]- (9CI) (CA INDEX NAME)



RN 238755-80-1 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2-[2-(2-hydroxyethoxy)ethyl]-9-[2-(1-piperazinyl)ethyl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 10 OF 15 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:716470 HCAPLUS

DOCUMENT NUMBER: 130:58369

TITLE: Liquid Crystal Perylene Diimide Films Characterized by Electrochemical, Spectroelectrochemical, and Conductivity versus Potential Measurements

AUTHOR(S): Gregg, Brian A.; Cormier, Russell A.

CORPORATE SOURCE: National Renewable Energy Laboratory, Golden, CO, 80401, USA

SOURCE: Journal of Physical Chemistry B (1998), 102(49), 9952-9957

CODEN: JPCBFK; ISSN: 1089-5647

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Electrochem. techniques were used to characterize thin polycryst. films of a liq. crystal perylene diimide. Cyclic voltammograms show evidence for strong attractive interactions between the perylene diimide mols. and suggest that the film undergoes two structural rearrangements to accommodate redn. to the anionic and dianionic states. Spectroelectrochem. measurements support this interpretation. The redox cond. of the film as a function of electrochem. potential was measured using interdigitated array electrodes. The cond. reaches the semiconducting level before the occurrence of the 1st noticeable redn. wave. The max. cond., 4.4 .times. 10⁻² S/cm, occurs when the film is reduced by 1 equiv of electrons, in contrast to the expectation that this state should be a Mott insulator.

CC 72-2 (Electrochemistry)

Section cross-reference(s): 73, 75, 76

IT 217496-52-1

RL: FMU (Formation, unclassified); PRP (Properties); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent)

(electrochem. reductive formation and redn.: liq. crystal perylene diimide films characterized by electrochem., spectroelectrochem., and cond. vs. potential measurements)

IT 217496-53-2

RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)

(electrochem. reductive formation: liq. crystal perylene diimide films characterized by electrochem., spectroelectrochem., and cond. vs. potential measurements)

IT 199606-43-4

RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(liq. crystal perylene diimide films characterized by electrochem., spectroelectrochem., and cond. vs. potential measurements)

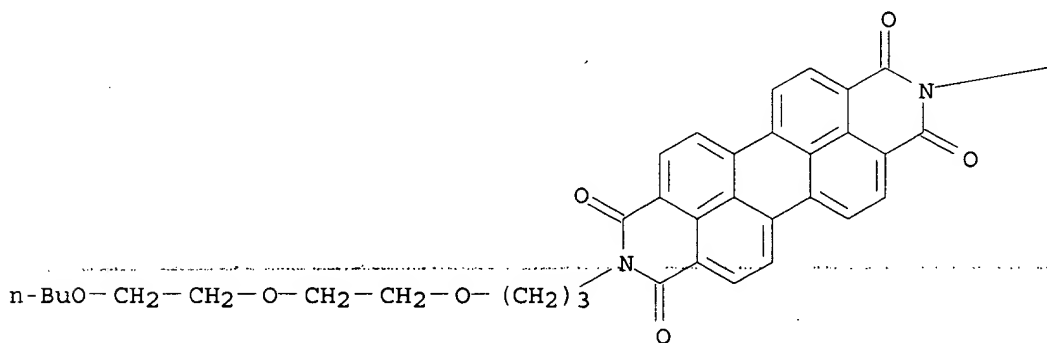
IT 217496-52-1

RL: FMU (Formation, unclassified); PRP (Properties); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent)
(electrochem. reductive formation and redn.: liq. crystal perylene diimide films characterized by electrochem., spectroelectrochem., and cond. vs. potential measurements)

RN 217496-52-1 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2,9-bis[3-[2-(2-butoxyethoxy)ethoxy]propyl]-, radical ion(1-) (9CI) (CA INDEX NAME)

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— (CH₂)₃—O—CH₂—CH₂—O—CH₂—CH₂—OBu-n

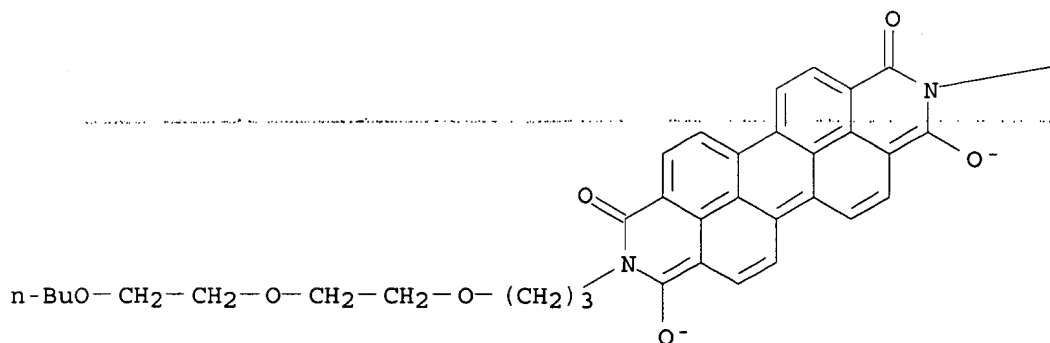
IT 217496-53-2

RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)
(electrochem. reductive formation: liq. crystal perylene diimide films characterized by electrochem., spectroelectrochem., and cond. vs. potential measurements)

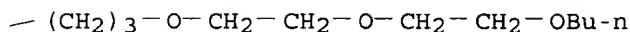
RN 217496-53-2 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,10-dione, 2,9-bis[3-[2-(2-butoxyethoxy)ethoxy]propyl]-2,9-dihydro-3,8-dihydroxy-ion(2-) (9CI) (CA INDEX NAME)

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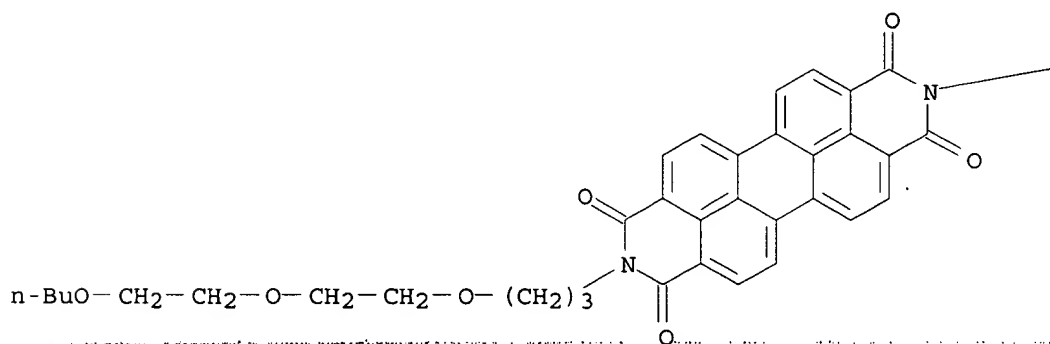
IT 199606-43-4

RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
 (liq. crystal perylene diimide films characterized by electrochem., spectroelectrochem., and cond. vs. potential measurements)

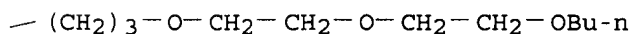
RN 199606-43-4 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2,9-bis[3-[2-(2-butoxyethoxy)ethoxy]propyl]- (9CI) (CA INDEX NAME)

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REFERENCE COUNT:

44

THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 11 OF 15 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:642702 HCAPLUS

DOCUMENT NUMBER: 130:4018

TITLE: Perylene- and Naphthalene-Based Linkers for Duplex and Triplex Stabilization

AUTHOR(S): Bevers, Susan; O'Dea, Timothy P.; McLaughlin, Larry W.

CORPORATE SOURCE: Department of Chemistry Merkert Chemistry Center,

Boston College, Chestnut Hill, MA, 02167, USA

SOURCE: Journal of the American Chemical Society (1998),
120(42), 11004-11005

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Perylene and naphthalene were chosen for development into planar π -stacking linkers in DNA duplex or triplex preps. Linkers were prep'd. by reaction of the corresponding tetra-carboxylic acid dianhydride with 2-aminoethoxyethanol or its tBDMS deriv. Thermal stabilities of DNA duplex (5'-TCTTTTCTT-linker-AAGAAAAGA) or triplex (5'-TCTTTTCTT-linker-TTCTTTTCT/9-mer or 19-mer) systems. Both the perylene and naphthalene-based duplex linkers showed increased T_m values, compared to a duplex tethered by hexa(ethylene glycol), but the perylene linker showed only a small increase over naphthalene, perhaps because it is significantly larger than necessary to bridge the phosphate residues at the terminus of a B-form helix, while the naphthalene-based linker can be more optimally positioned at the end of a duplex. In triplex formation, the most significant T_m enhancements were those that occurred with the 19-mer complex, where the perylene-based linker showed a 19.degree. increase at pH 5.5; for both linkers, this is perhaps due to their potential to provide stacking interactions with all three residues, and possibly with the first base residue of the target strand that extends beyond the triplex region.

CC 33-10 (Carbohydrates)

IT 164932-87-0P 215297-15-7P 215297-16-8P 215297-17-9P

215297-18-0P 215297-19-1P 215297-20-4P

215297-21-5P 215297-22-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(perylene- and naphthalene-based linkers for duplex and triplex stabilization)

IT 215297-18-0P 215297-19-1P 215297-20-4P

215297-21-5P 215297-22-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(perylene- and naphthalene-based linkers for duplex and triplex stabilization)

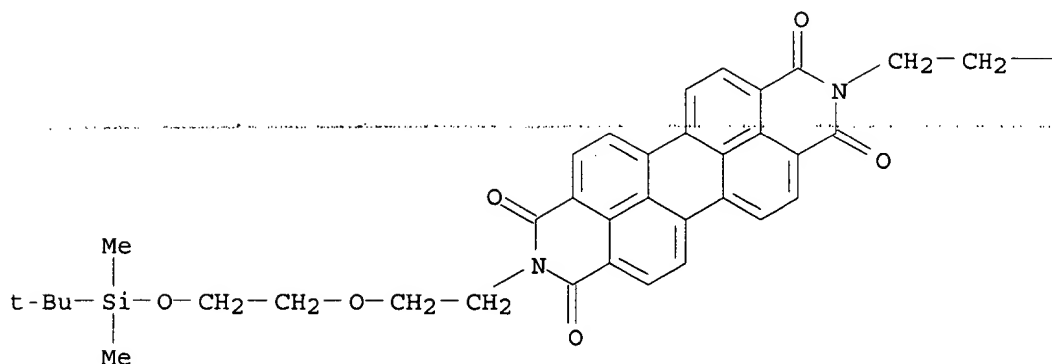
RN 215297-18-0 HCAPLUS

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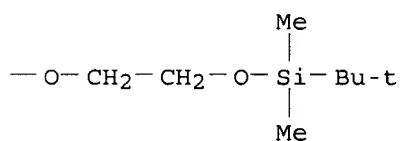
2,9-bis[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl)-(9CI)

(CA INDEX NAME)

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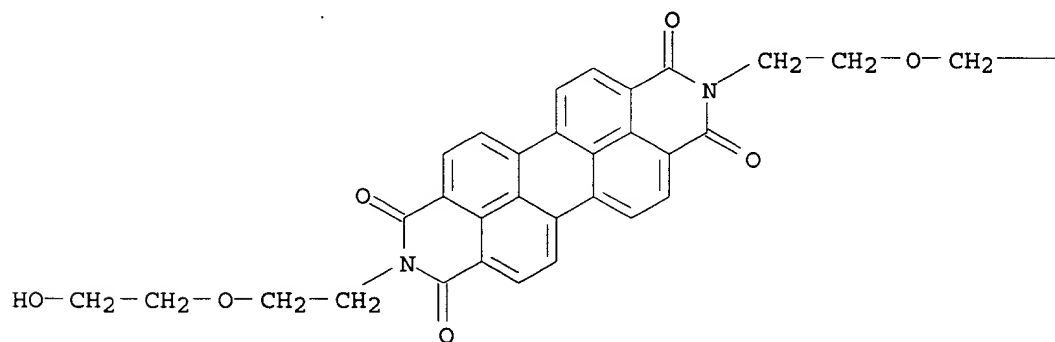
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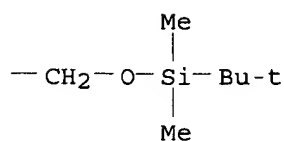
RN 215297-19-1 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2-[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]-9-[2-(2-
hydroxyethoxy)ethyl]- (9CI) (CA INDEX NAME)

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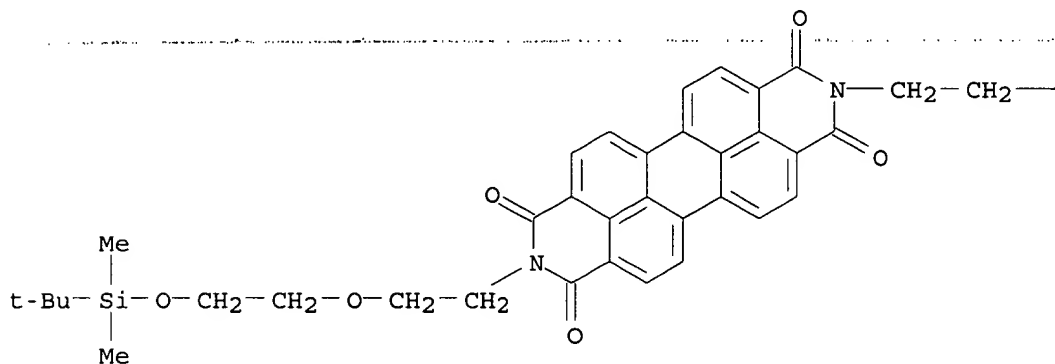


RN 215297-20-4 HCAPLUS

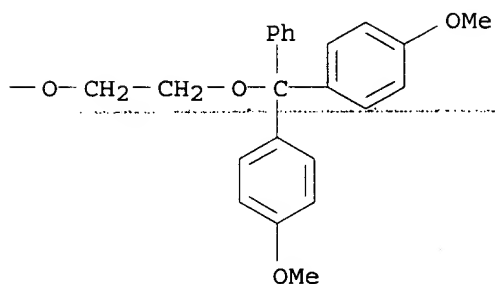
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,

2-[2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxy]ethyl]-9-[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]- (9CI) (CA INDEX NAME)

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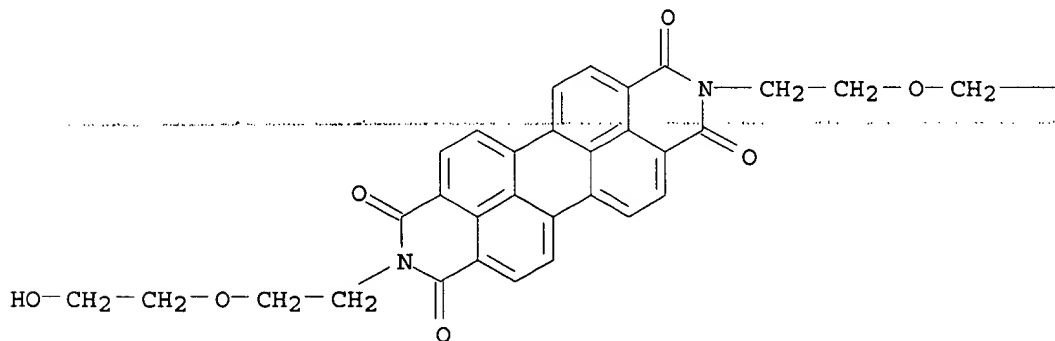


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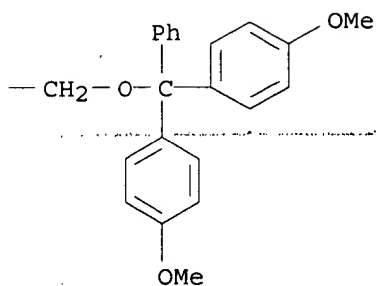


RN 215297-21-5 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
 2-[2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxy]ethyl]-9-[2-(2-hydroxyethoxy)ethyl]- (9CI) (CA INDEX NAME)

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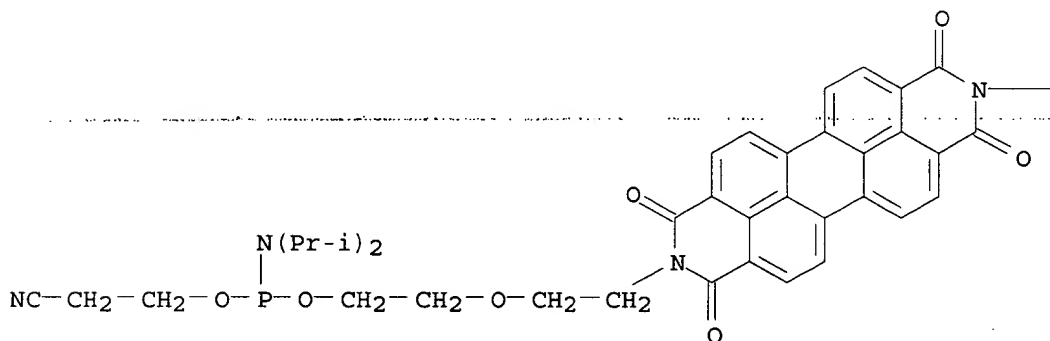
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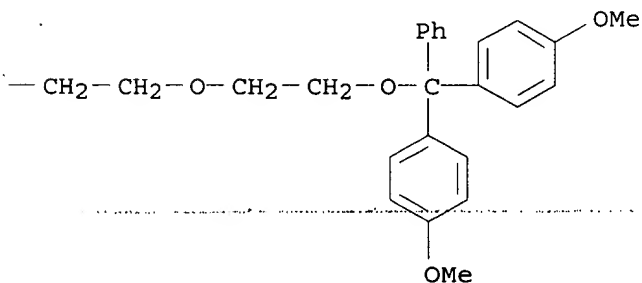
RN 215297-22-6 HCAPLUS

CN Phosphoramidous acid, bis(1-methylethyl)-, 2-[2-[9-[2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxy]ethyl]-3,8,9,10-tetrahydro-1,3,8,10-tetraoxoanthra[2,1,9-def:6,5,10-d'e'f']diisoquinolin-2(1H)-yl]ethoxy]ethyl 2-cyanoethyl ester (9CI) (CA INDEX NAME)

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REFERENCE COUNT: 16 . THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 12 OF 15 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:269529 HCAPLUS

DOCUMENT NUMBER: 128:302412

TITLE: Synthesis and Characterization of Liquid Crystalline

AUTHOR(S): Perylene Diimides
 Cormier, Russell A.; Gregg, Brian A.
 CORPORATE SOURCE: National Renewable Energy Laboratory, Golden, CO,
 80401, USA
 SOURCE: Chemistry of Materials (1998), 10(5), 1309-1319
 CODEN: CMATEX; ISSN: 0897-4756
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Several polyoxyethylene-substituted perylene-3,4,9,10-tetracarboxyldiimides were synthesized and characterized. Relative to other known perylene diimide derivs., all of the present compds. have much lower m.ps. and much greater soly. in common solvents. Most of these compds. possess liq. cryst. properties over a wide range of temps., some of them even at room temp. and below. Some of the photophys. and self-organizing characteristics of these compds. are demonstrated, particularly with regard to the spontaneous formation of a highly cryst. black phase. Generalized correlations about the phys. properties and the chem. structures of these new liq. cryst. compds. are discussed. Their unusual phys. and photophys. properties have important implications for their use in a variety of electroactive and photovoltaic applications.

CC 75-11 (Crystallography and Liquid Crystals)

Section cross-reference(s): 28

IT 67075-37-0P 106822-31-5P 199606-40-1P 199606-41-2P
 199606-42-3P 199606-43-4P 199606-44-5P
 199606-45-6P 199606-46-7P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

(prepn. and liq. crystal properties and spectral characterization of)

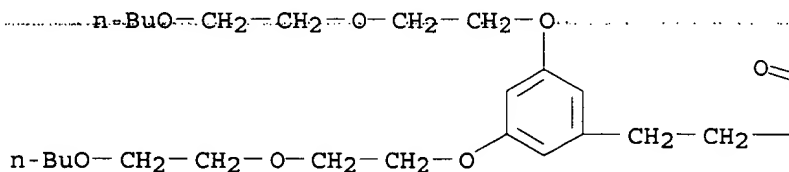
IT 199606-40-1P 199606-41-2P 199606-42-3P
 199606-43-4P 199606-44-5P 199606-46-7P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
 (prepn. and liq. crystal properties and spectral characterization of)

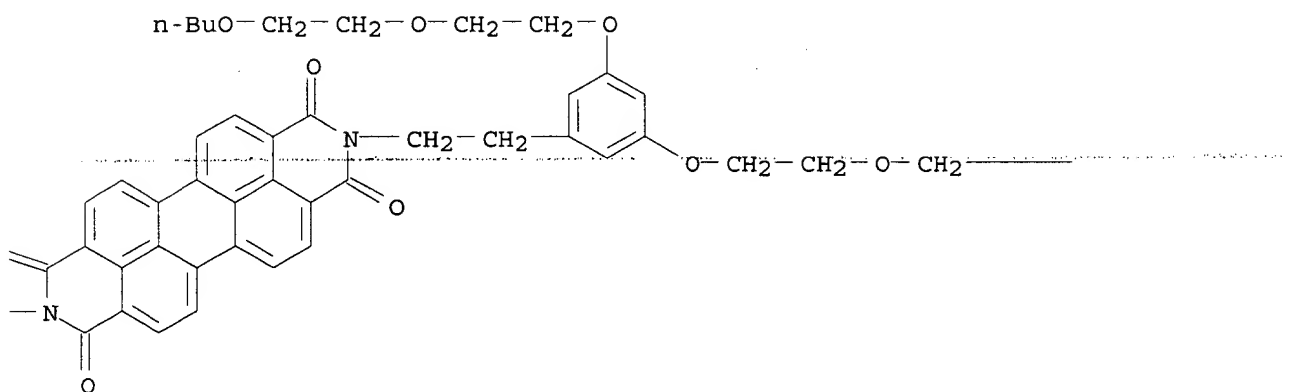
RN 199606-40-1 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
 2,9-bis[2-[3,5-bis[2-(2-butoxyethoxy)ethoxy]phenyl]ethyl]- (9CI) (CA
 INDEX NAME)

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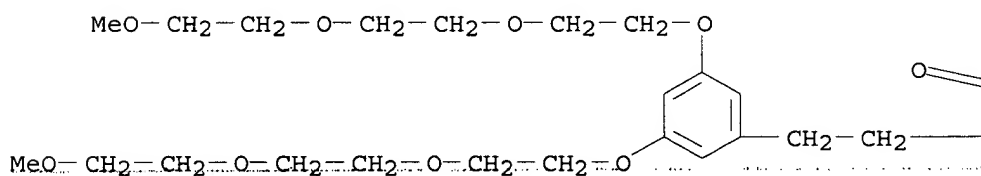
PAGE 1-C

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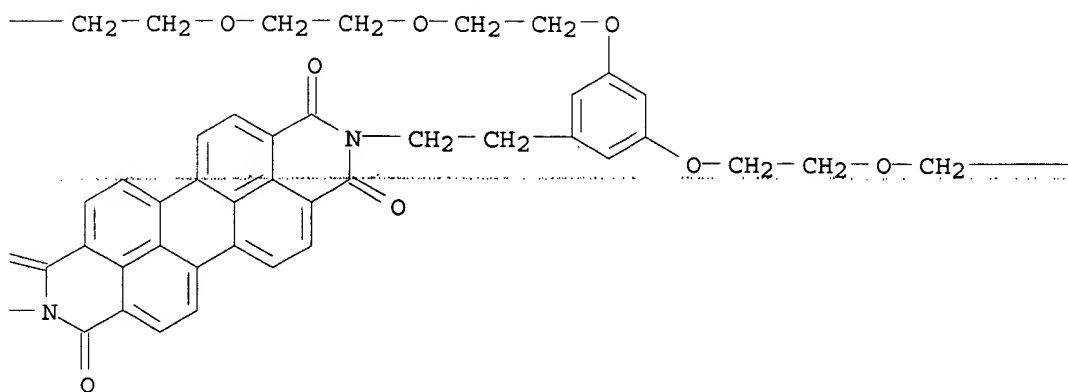
RN 199606-41-2 HCAPLUS
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 (9CI) (CA INDEX NAME)

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MeO—



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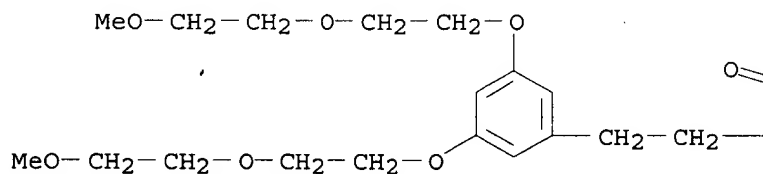


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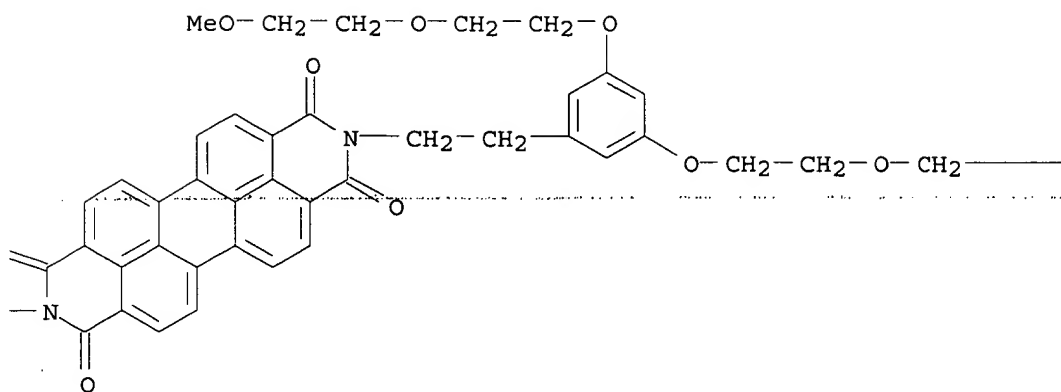


RN 199606-42-3 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
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 INDEX NAME)

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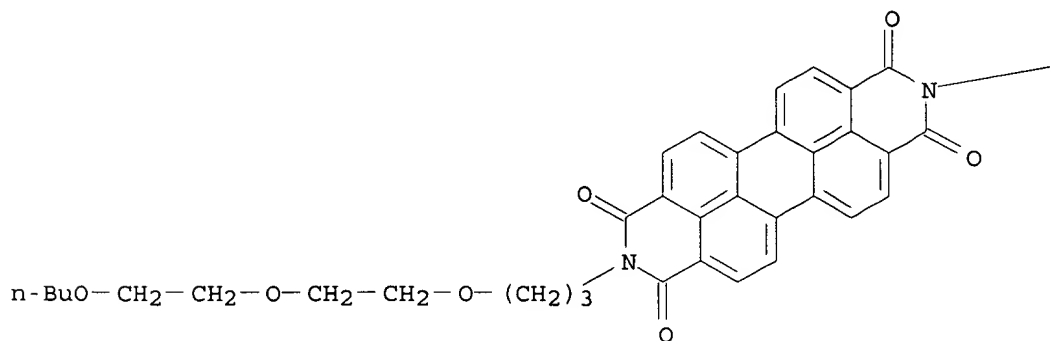
PAGE 1-C

—CH₂—OMe

RN 199606-43-4 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2,9-bis[3-[2-(2-butoxyethoxy)ethoxy]propyl]- (9CI) (CA INDEX NAME)

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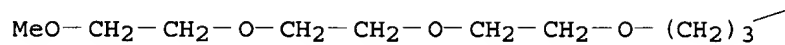
PAGE 1-B

—(CH₂)₃—O—CH₂—CH₂—O—CH₂—CH₂—OBu-n

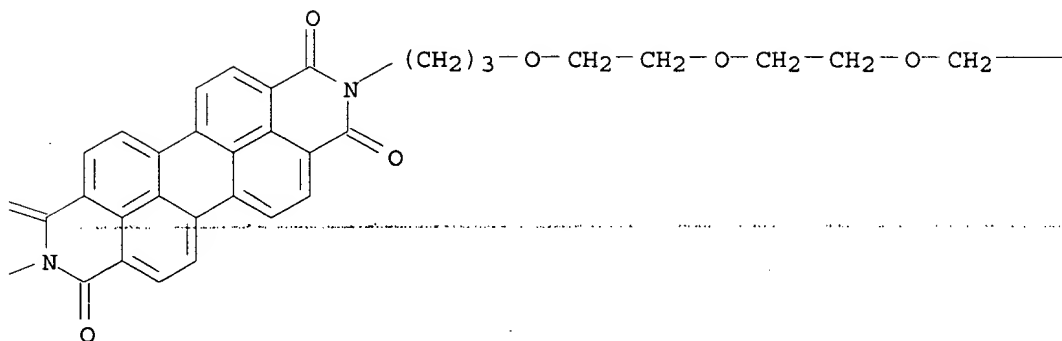
RN 199606-44-5 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2,9-bis(4,7,10,13-tetraoxatetradec-1-yl)- (9CI) (CA INDEX NAME)

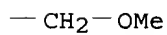
PAGE 1-A



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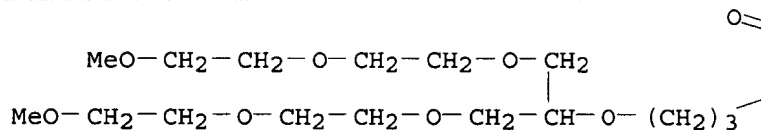
PAGE 1-C



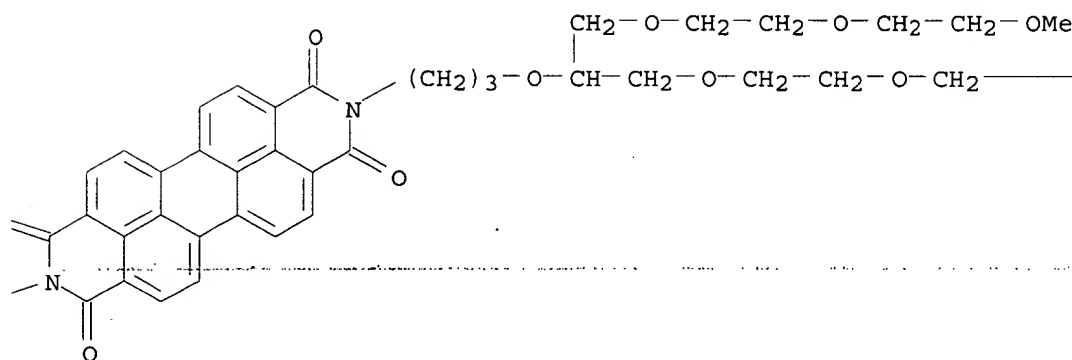
RN 199606-46-7 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2,9-bis[4-[[2-[2-(2-methoxyethoxy)ethoxy]methyl]-4,7,10,13-
tetraoxatetradec-1-yl]- (9CI) (CA INDEX NAME)

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— CH₂—OMe

L13 ANSWER 13 OF 15 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:16270 HCAPLUS

DOCUMENT NUMBER: 128:41835

TITLE: Self-Organization in Thin Films of Liquid Crystalline Perylene Diimides

AUTHOR(S): Cormier, Russell A.; Gregg, Brian A.

CORPORATE SOURCE: National Renewable Energy Laboratory; Golden, CO, 80401-3393, USA

SOURCE: Journal of Physical Chemistry B (1997), 101(51), 11004-11006

CODEN: JPCBFK; ISSN: 1089-5647

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A family of liq. cryst. org. semiconductors based on perylene-3,4,9,10-tetracarboxyldiimide is introduced. The thermal transitions,

self-organizing behavior, and change in photophys. properties upon self-organization of one member of the family are described. Red, polycryst. thin films of spin-coated N,N'-bis[3-[1,3-bis[2-(2-methoxyethoxy)ethoxy]-2-propoxy]propyl]perylene-3,4,9,10-tetracarboxyldiimide spontaneously form a highly cryst. black phase after .apprx.24 h. The quantum yield for fluorescence from the black phase is enhanced 7-fold, and the width (fwhm) of the emission band is decreased by more than a factor of 2, with respect to the red phase. The self-organization process appears to decrease spontaneously both the energetic disorder and the d. of exciton quenching sites in the film.

CC 75-11 (Crystallography and Liquid Crystals)
Section cross-reference(s): 66

IT 199606-40-1P 199606-41-2P 199606-42-3P
199606-43-4P 199606-44-5P 199606-45-6P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and liq. crystal properties of)

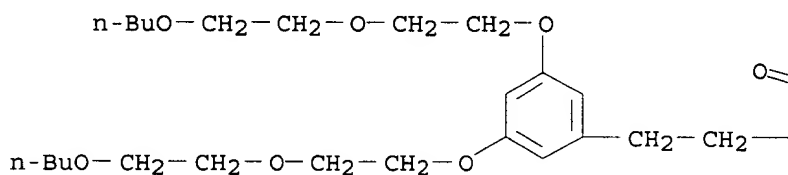
IT 199606-46-7P
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(prepn., liq. crystal properties, and fluorescence of black cryst. phase of)

IT 199606-40-1P 199606-41-2P 199606-42-3P
199606-43-4P 199606-44-5P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and liq. crystal properties of)

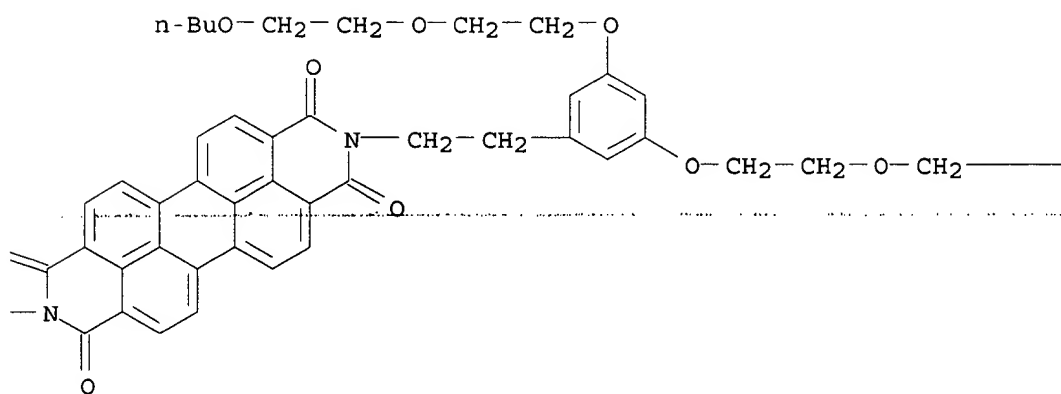
RN 199606-40-1 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2,9-bis[2-[3,5-bis[2-(2-butoxyethoxy)ethoxy]phenyl]ethyl]- (9CI) (CA INDEX NAME)

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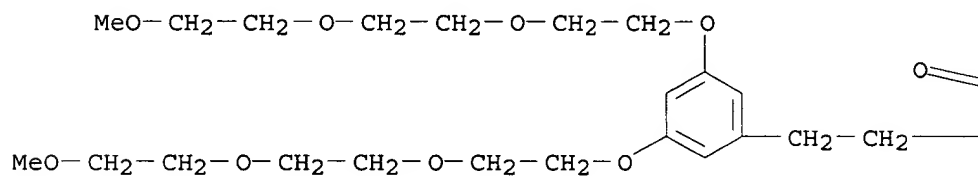
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RN 199606-41-2 HCAPLUS

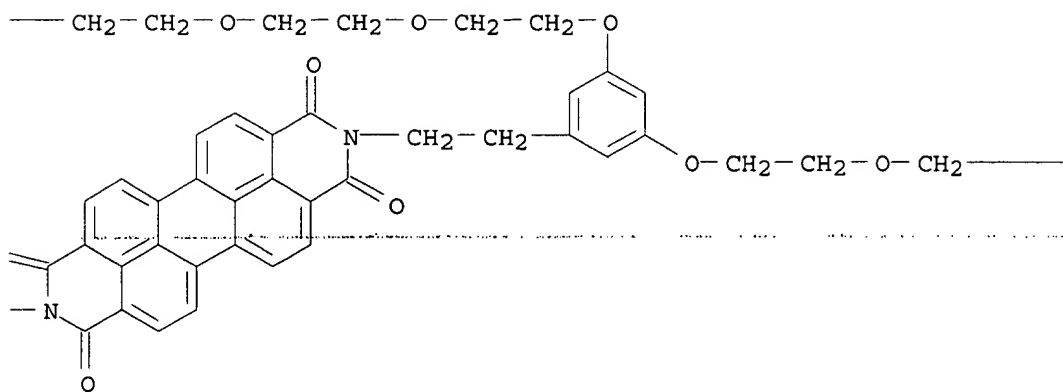
CN Anthra{2,1,9-def-6,5,10-d'e'f'}diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2,9-bis[2-[3,5-bis[2-[2-(2-methoxyethoxy)ethoxy]ethoxy]phenyl]ethyl]-
(9CI) (CA INDEX NAME)

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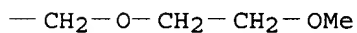
MeO—



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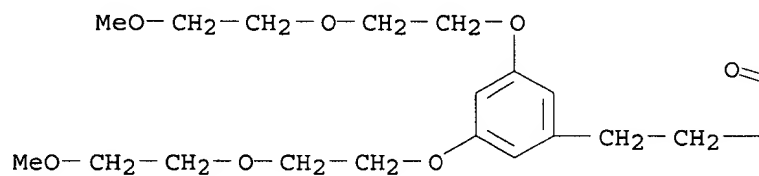
PAGE 1-C



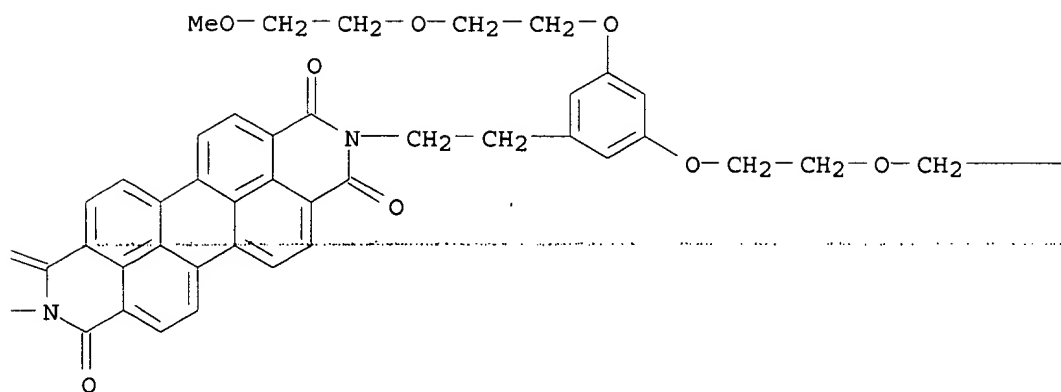
RN 199606-42-3 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2,9-bis[2-[3,5-bis[2-(2-methoxyethoxy)ethoxy]phenyl]ethyl]-(9CI) (CA
INDEX NAME)

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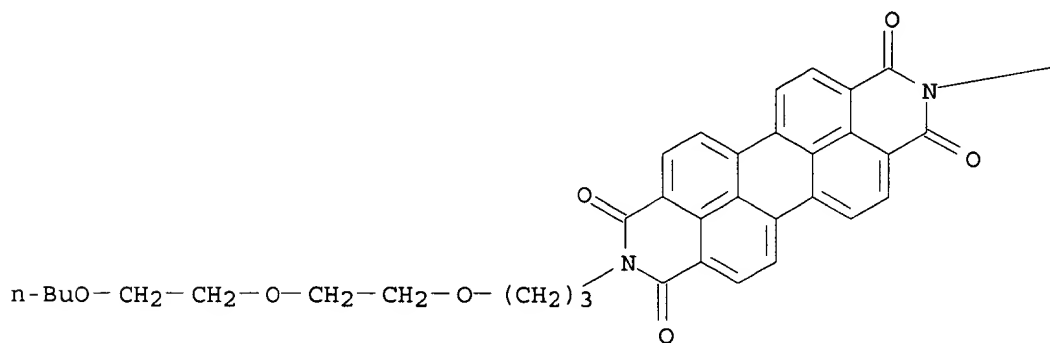
PAGE 1-C

—CH₂—OMe

RN 199606-43-4 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2,9-bis{3-[2-(2-butoxyethoxy)ethoxy]propyl}- (9CI) (CA INDEX NAME)

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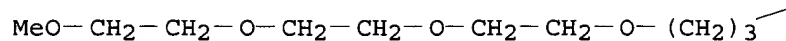
PAGE 1-B

—(CH₂)₃—O—CH₂—CH₂—O—CH₂—CH₂—OBu-n

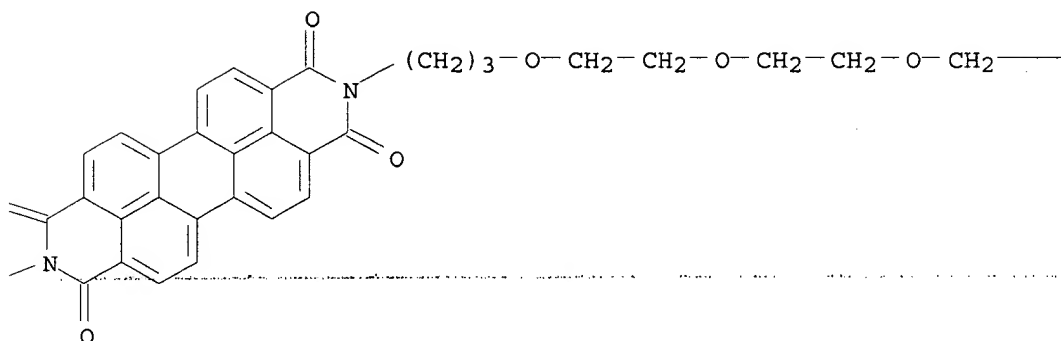
RN 199606-44-5 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2,9-bis(4,7,10,13-tetraoxatetradec-1-yl)- (9CI) (CA INDEX NAME)

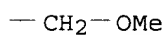
PAGE 1-A



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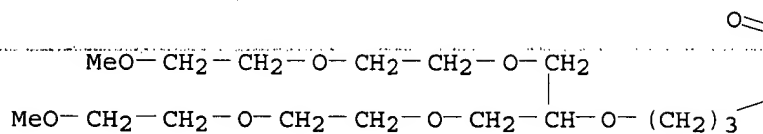
IT 199606-46-7P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(prepn., liq. crystal properties, and fluorescence of black cryst. phase of)

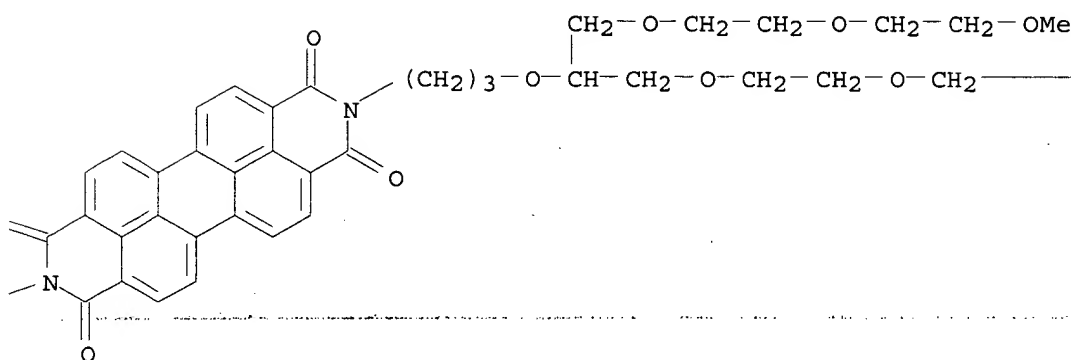
RN 199606-46-7 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2,9-bis[4-[[2-[2-(2-methoxyethoxy)ethoxy]methyl]-4,7,10,13-tetraoxatetradec-1-yl]-(9CI) (CA INDEX NAME)

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—CH₂—OMe

L13 ANSWER 14 OF 15 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1986:99208 HCAPLUS

DOCUMENT NUMBER: 104:99208

TITLE: Dye laser

INVENTOR(S): Graser, Fritz; Iden, Ruediger; Seybold, Guenther;
Stange, Andreas; Wagenblast, Gerhard

PATENT ASSIGNEE(S): BASF A.-G., Fed. Rep. Ger.

SOURCE: Ger. Offen., 46 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------|------|-------|-----------------|-------|
| ----- | ---- | ----- | ----- | ----- |

DE 3413418 A1 19851017 DE 1984-3413418 19840410
 PRIORITY APPLN. INFO.: DE 1984-3413418 19840410
 AB Substituted violanthrene-5,10-dione, isoviolanthrene-9,18-dione, and
 perylene dyes have high fluorescence quantum yields and high light and
 heat resistances which make them extremely suitable for use in dye lasers.
 Thus, a soln. of perylene-3,4,9,10-tetracarboxylic acid
 bis(2',6'-dimethylphenylimide) in DMF (1 .times. 10⁻⁴ mol/L) was excited
 at 530 nm with a Nd YAG laser. The dye emitted at 580 nm with
 fluorescence quantum yield of 98%.

IC ICM H01S003-20
 ICS C09B003-14; C09B003-78; C09B005-00

CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related
 Properties)
 Section cross-reference(s): 41

IT 2744-50-5 23277-28-3 39951-99-0 59642-63-6 59736-90-2 76372-76-4
 78151-58-3 79306-86-8 85652-35-3 85652-46-6 85652-53-5
 85652-55-7 90824-87-6 90826-82-7 95609-41-9 95609-44-2
 95609-45-3 95689-40-0 95689-41-1 95689-42-2 95689-43-3
 95689-45-5 95689-46-6 95689-47-7 95689-51-3 95689-53-5
 95689-54-6 95689-55-7 95689-57-9 95689-58-0 95689-59-1
95689-61-5 95689-62-6 95689-64-8 95689-65-9 95689-68-2
 95689-72-8 95689-92-2 95690-01-0 97087-28-0 100441-37-0
 100443-90-1 100443-94-5 100443-95-6 100443-96-7
 RL: DEV (Device component use); USES (Uses)
 (for dye lasers)

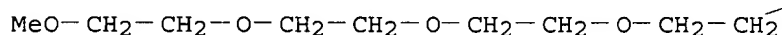
IT **95689-61-5**
 RL: DEV (Device component use); USES (Uses)
 (for dye lasers)

RN 95689-61-5 HCAPLUS

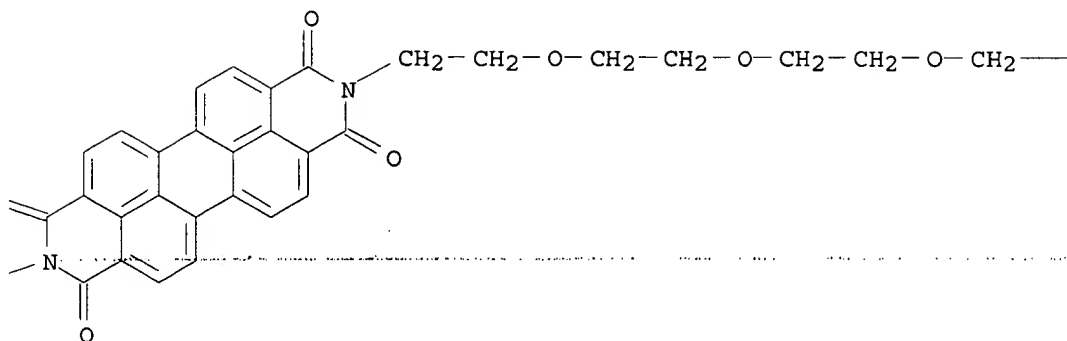
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
 2,9-bis(3,6,9,12-tetraoxatridec-1-yl)- (9CI) (CA INDEX NAME)

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—CH₂—OMe

L13 ANSWER 15 OF 15 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1985:150903 HCAPLUS

DOCUMENT NUMBER: 102:150903

TITLE: Fluorescent dyes for solar collectors

AUTHOR(S): Iden, Ruediger; Seybold, Guenther; Stange, Andreas;

Bilingsfeld, Heinz

CORPORATE SOURCE: ZD/Farbenlab., BASF A.-G., Ludwigshafen, Fed. Rep. Ger.

SOURCE: Forschungsber. - Bundesminist. Forsch. Technol., Technol. Forsch. Entwickl. (1984), BMFT-FB-T 84-164, 115 pp.

CODEN: BFTEAJ; ISSN: 0340-7608

DOCUMENT TYPE: Report

LANGUAGE: German

AB A large no. of org. dyes was synthesized and screened for potential use in solar collectors. Most suitable were perylene and perylene imide dyes, B complexes of naphtholactam dyes, and polycarbocyclic dyes. These compds. covered the whole color range from yellow to blue. Chromatog. methods were developed for purifn. of fluorescent dyes.

CC 41-1 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)

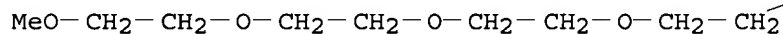
Section cross-reference(s): 52

| | | | | | | |
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| IT | 5521-31-3 | 16612-39-8 | 22047-48-9 | 25834-02-0 | 55303-01-0 | 59642-63-6 |
| | 69207-58-5 | 76372-76-4 | 78151-58-3 | 79306-86-8 | 82953-57-9 | |
| | 84164-63-6 | 85652-53-5 | 90826-77-0 | 90826-79-2 | 90826-82-7 | |
| | 95609-43-1 | 95609-45-3 | 95630-52-7 | 95689-40-0 | 95689-42-2 | |
| | 95689-44-4 | 95689-45-5 | 95689-48-8 | 95689-54-6 | 95689-57-9 | |
| | 95689-58-0 | 95689-59-1 | 95689-61-5 | 95689-62-6 | 95689-63-7 | |
| | 95689-64-8 | 95689-65-9 | 95689-66-0 | 95689-68-2 | 95689-83-1 | |
| | 95689-84-2 | 95689-85-3 | 95689-86-4 | 95689-87-5 | 95689-88-6 | |
| | 95689-89-7 | 95689-92-2 | 95690-05-4 | 95710-53-5 | 95710-54-6 | |
| | 95710-57-9 | | | | | |

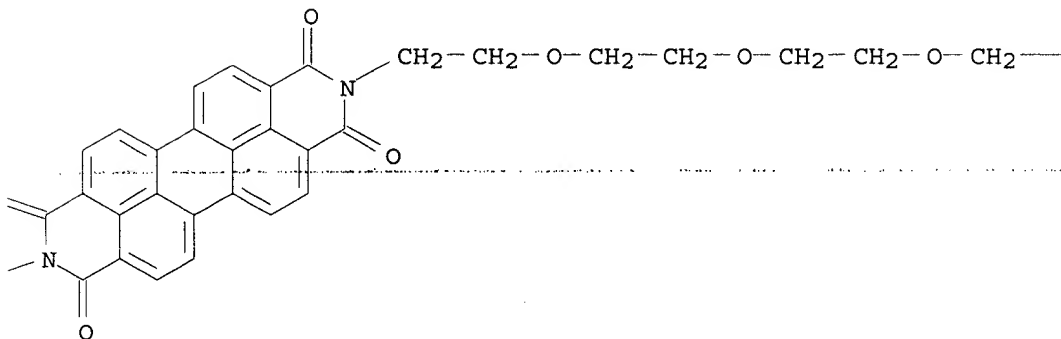
RL: USES (Uses)

(absorption-emission max. and soly. of)
IT 95689-61-5
RL: USES (Uses)
(absorption-emission max. and soly. of)
RN 95689-61-5 HCAPLUS
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2,9-bis(3,6,9,12-tetraoxatridec-1-yl)- (9CI) (CA INDEX NAME)

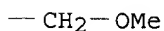
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L16 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1998:493638 HCAPLUS
DOCUMENT NUMBER: 129:137384
TITLE: Methods for improving the adhesion and/or
colorfastness of ink jet inks with respect to
substrates applied thereto, and compositions useful

INVENTOR(S): therefor
 PATENT ASSIGNEE(S): Woolf, Jerome A.
 SOURCE: Formulabs, USA; Woolf, Jerome A.
 PCT Int. Appl., 46 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|-----------------|----------|
| WO 9830642 | A1 | 19980716 | WO 1997-US24099 | 19971231 |
| W: AU, CA, JP, US | | | | |
| RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| US 5897694 | A | 19990427 | US 1997-779528 | 19970106 |
| AU 9856231 | A1 | 19980803 | AU 1998-56231 | 19971231 |
| EP 951516 | A1 | 19991027 | EP 1997-952674 | 19971231 |
| R: BE, DE, ES, FR, GB, IT, NL, SE | | | | |
| JP 2001508482 | T2 | 20010626 | JP 1998-530943 | 19971231 |
| PRIORITY APPLN. INFO.: US 1997-779528 A2 19970106 | | | | |
| WO 1997-US24099 W 19971231 | | | | |

AB In accordance with the present invention, it has been discovered that the adhesion properties and/or colorfastness of ink jet formulations when applied to a variety of substrates can be improved by adding a specific class of additives thereto. The additives are typically chelates of transition metals contg. .alpha.-hydroxy carboxylic acid ligands, e.g. zirconium lactate. Invention formulations enable application of water-resistant (e.g., washable), colorfast images to a wide variety of substrates employing ink jet methodol. For example, an ink compn. contg. distd. water 87.1, 2-pyrrolidone 5, Giv-Gard DXN 0.1, Cobratec 99 0.1, AMP-95 1, Milliken polymeric blue colorant 10061-52 6.5, and zirconium lactate 0.2 wt.% was prepd.

IC ICM C09D011-02
 CC 42-12 (Coatings, Inks, and Related Products)
 IT 56-81-5, 1,2,3-Propanetriol, uses 67-63-0, Isopropyl alcohol, uses 78-59-1, Isophorone 97-64-3, Ethyl lactate 107-21-1, 1,2-Ethanediol, uses 107-88-0, 1,3-Butylene glycol 109-86-4, Ethylene glycol monomethyl ether 111-29-5, 1,5-Pentanediol 111-46-6, uses 111-48-8, Thiodiglycol 112-27-6 112-59-4 123-42-2, Diacetone alcohol 138-22-7, Butyl lactate 504-63-2, 1,3-Propanediol 547-64-8, Methyl lactate 616-45-5, 2-Pyrrolidone 617-51-6, Isopropyl lactate 872-50-4, uses 1320-67-8, Propylene glycol monomethyl ether 1330-20-7, Xylene, uses 25322-68-3 68894-53-1, Tergitol
 RL: NUU (Other use, unclassified); USES (Uses)
 (improvement of adhesion and/or colorfastness of ink jet inks with respect to substrates by adding .alpha.-hydroxy carboxylic acid-metal chelates)
 IT 95-14-7, Cobratec 99 124-68-5, AMP-95 147-14-8, Phthalocyanine blue 475-71-8, Flavanthrone yellow 641-13-4, Anthanthrone 828-00-2, Giv-Gard DXN 980-26-7, Quinacridone magenta 1303-86-2, Boric oxide, uses 1304-28-5, Barium oxide, uses 1304-76-3, Bismuth oxide, uses 1305-78-8, Calcium oxide, uses 1306-19-0, Cadmium oxide, uses 1306-23-6, Cadmium yellow, uses 1309-48-4, Magnesium oxide, uses 1313-59-3, Sodium oxide, uses 1313-99-1, Nickel oxide, uses 1314-11-0, Strontium oxide, uses 1314-13-2, Zinc white, uses 1314-23-4, Zirconium oxide, uses 1314-56-3, Phosphorus oxide, uses 1314-62-1, Vanadium oxide, uses 1317-80-2, Rutile 1328-53-6, Phthalocyanine green 1332-29-2, Tin oxide 1335-25-7, Lead oxide 1344-28-1, Aluminum oxide, uses 1344-37-2, Chrome yellow 1344-70-3, Copper oxide 1344-98-5,

Terre verte 1345-05-7, Lithopone 1345-16-0, Cobalt blue 2425-85-6, Toluidine red 2512-29-0, Arylide yellow G 3905-19-9 4424-06-0, Perinone orange 6424-77-7, Perylene red 6486-23-3, Arylide yellow 10G 7631-86-9, Silicon oxide, uses 7727-43-7, Blanc fixe 8011-87-8, Cobalt green 8012-00-8, Naples yellow 8046-59-1, Manganese blue 10101-66-3, Manganese violet 10294-40-3, Barium chromate 11104-61-3, Cobalt oxide 11118-57-3, Chromium oxide 11129-18-3, Cerium oxide 11129-60-5, Manganese oxide 12000-57-6, Burnt sienna 12001-99-9, Viridian 12035-39-1, Nickel titanate 12136-45-7, Potassium oxide, uses 12227-89-3, Mars black 12240-15-2, Prussian blue 12645-46-4, Iridium oxide 12769-96-9, Ultramarine violet 13463-67-7, Titanium oxide (TiO₂), uses 13782-01-9, Aureolin 20667-12-3, Silver oxide 37300-23-5, Zinc yellow 39283-39-1, Quinacridone red 51931-46-5, Nickel azo yellow 57455-37-5, Ultramarine blue 58339-34-7, Cadmium red 64294-91-3, Yellow ochre 71538-26-6, Rose madder 82196-89-2, Cobalt violet 144892-73-9, Aluminum hydrate 210637-30-2, Milliken Blue 10061-52 210637-39-1, Spectra Fix Black MW-B 210637-40-4, Spectra Fix Red 195 215247-95-3, Dioxazine violet

RL: TEM (Technical or engineered material use); USES (Uses)
(improvement of adhesion and/or colorfastness of ink jet inks with respect to substrates by adding .alpha.-hydroxy carboxylic acid-metal chelates)

IT 111-46-6, uses

RL: NUU (Other use, unclassified); USES (Uses)
(improvement of adhesion and/or colorfastness of ink jet inks with respect to substrates by adding .alpha.-hydroxy carboxylic acid-metal chelates)

RN 111-46-6 HCAPLUS

CN Ethanol, 2,2'-oxybis- (9CI) (CA INDEX NAME)

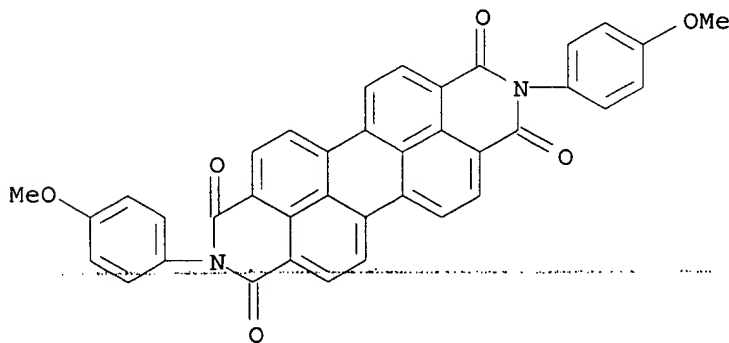
HO-CH₂-CH₂-O-CH₂-CH₂-OH

IT 6424-77-7, Perylene red

RL: TEM (Technical or engineered material use); USES (Uses)
(improvement of adhesion and/or colorfastness of ink jet inks with respect to substrates by adding .alpha.-hydroxy carboxylic acid-metal chelates)

RN 6424-77-7 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2,9-bis(4-methoxyphenyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT:

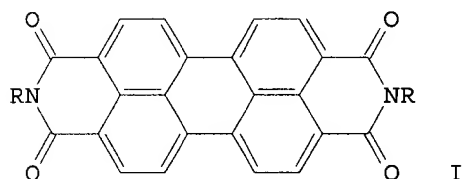
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THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1992:593603 HCAPLUS
 DOCUMENT NUMBER: 117:193603
 TITLE: Preparation of black perylenetetracarboxylic diimide
 camouflage pigments
 INVENTOR(S): Kleine, Fritz
 PATENT ASSIGNEE(S): Chemiekombinat Bitterfeld, Germany
 SOURCE: Ger. (East), 13 pp.
 CODEN: GEXXA8
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|-------------------|-----------------|----------|
| DD 299733 | A7 | 19920507 | DD 1980-226325 | 19801223 |
| PRIORITY APPLN. INFO.: | | | DD 1980-226325 | 19801223 |
| OTHER SOURCE(S): | | MARPAT 117:193603 | | |

GI



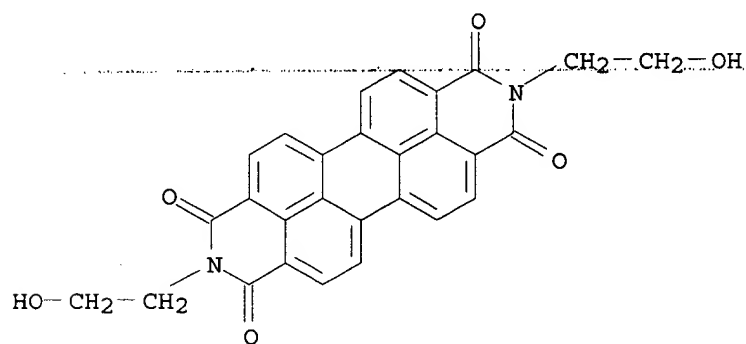
- AB The title pigments [I; R = 2-hydroxypropyl, Bu, 2-hydroxyethyl, 2-aminoethyl, C(:NH)NHCH, C(:NH)NH₂, NHC(:NH)NH₂, C(:NH)NHCONH₂, or 1-carbamidino-3-methyl-5-pyrazolone optionally with 4-Cl or 4-NO₂ group] are obtained by heating perylenetetracarboxylic acid or dianhydride (II) with the appropriate amine for 30-150 min at 160-230.degree. in a C5-12 di- or trialc. or its mono or diether or an araliph. alc. or its ester. I have very little diffuse reflection (d) at 380-680 nm and very high d at 740-1280 nm. Thus, diethylene glycol 100, II 30, and ethylenediamine were heated to 110.degree. and then kept 30 min at 200.degree. to give 37.5 parts I (R = 2-aminoethyl).
- IC ICM C09B005-62
ICS C09D005-30
- CC 41-5 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)
- IT 26872-64-0P 28226-34-8P 52000-75-6P
87710-94-9P 143992-60-3P 143992-61-4P
143992-62-5P 143992-63-6P 143992-64-7P
143992-65-8P 143992-66-9P
RL: IMF (Industrial manufacture); PREP (Preparation)
(prepn. of, as camouflage pigments)
- IT 100-51-6, Benzyl alcohol, uses 107-21-1, 1,2-Ethanediol, uses
111-46-6, uses 111-87-5, 1-Octanol, uses 112-27-6, Triglycol
122-99-6, 2-Phenoxyethanol
RL: USES (Uses)
(solvent, for condensation of perylenetetracarboxylic dianhydride with amines)
- IT 26872-64-0P 28226-34-8P 52000-75-6P

87710-94-9P 143992-60-3P 143992-61-4P
143992-62-5P 143992-63-6P 143992-64-7P
143992-65-8P 143992-66-9P

RL: IMF (Industrial manufacture); PREP (Preparation)
(prepn. of, as camouflage pigments)

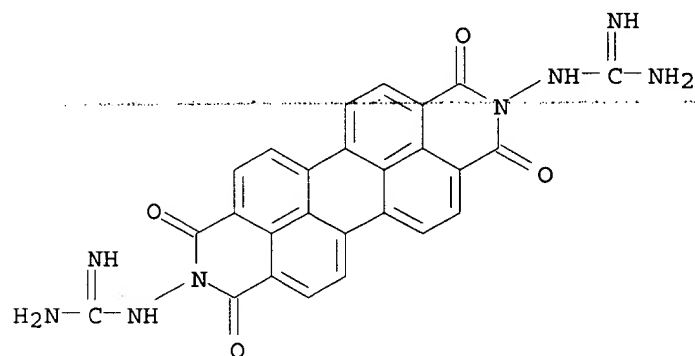
RN 26872-64-0 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2,9-bis(2-hydroxyethyl)- (9CI) (CA INDEX NAME)



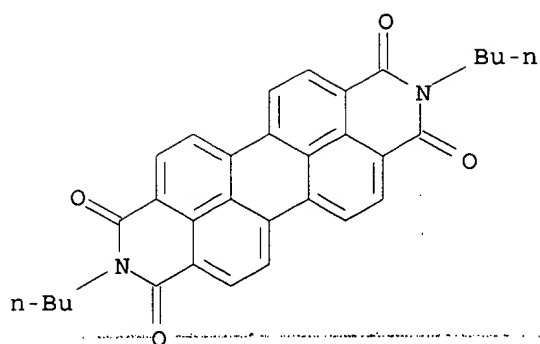
RN 28226-34-8 HCAPLUS

CN Guanidine, N,N'''-(1,3,8,10-tetrahydro-1,3,8,10-tetraoxoanthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-2,9-diyl)bis- (9CI) (CA INDEX NAME)

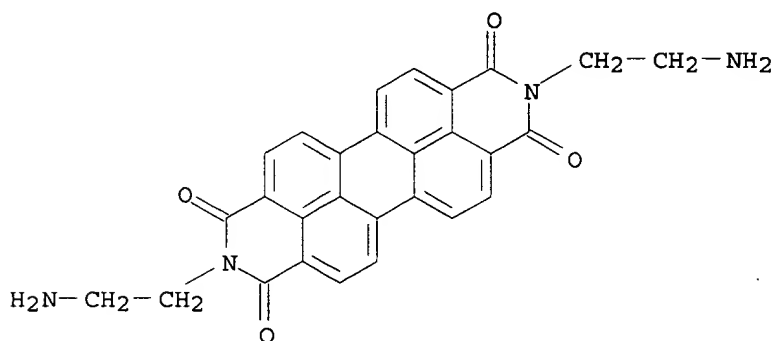


RN 52000-75-6 HCAPLUS

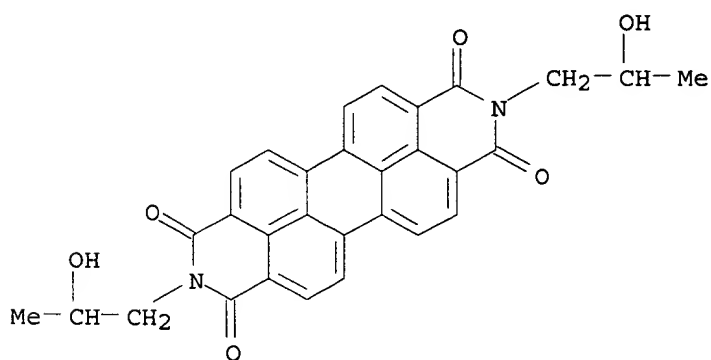
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2,9-dibutyl- (9CI) (CA INDEX NAME)



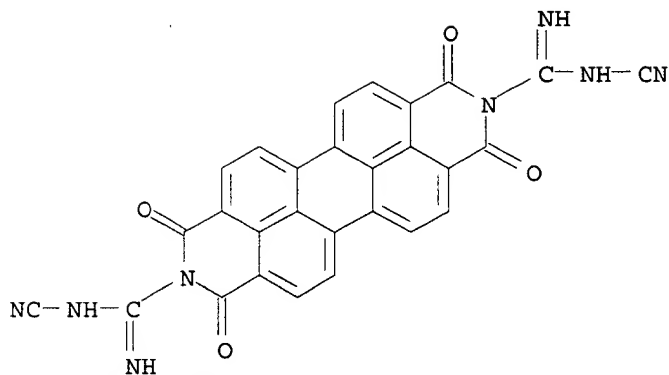
RN 87710-94-9 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
 2,9-bis(2-aminoethyl)- (9CI) (CA INDEX NAME)



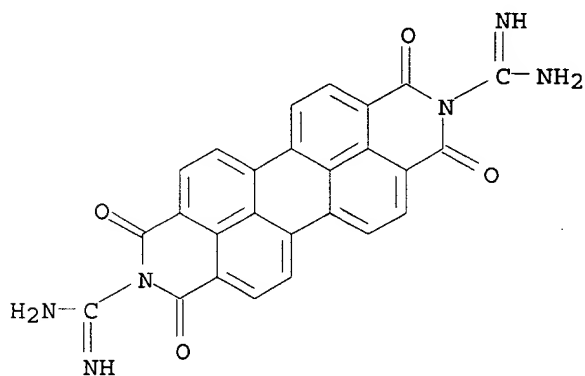
RN 143992-60-3 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
 2,9-bis(2-hydroxypropyl)- (9CI) (CA INDEX NAME)



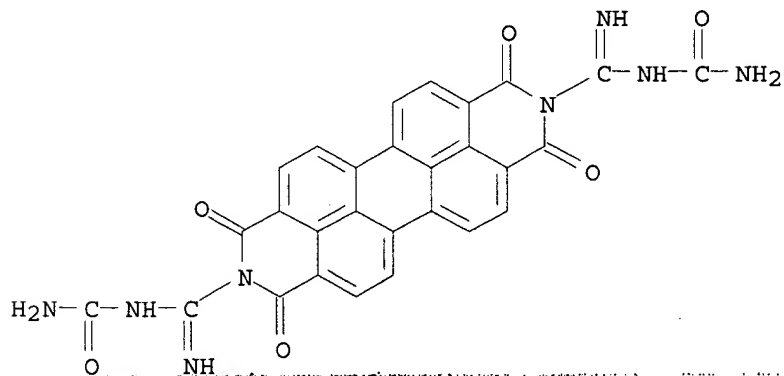
RN 143992-61-4 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-2,9-dicarboximidamide,
 N,N'-dicyano-1,3,8,10-tetrahydro-1,3,8,10-tetraoxo- (9CI) (CA INDEX
 NAME)



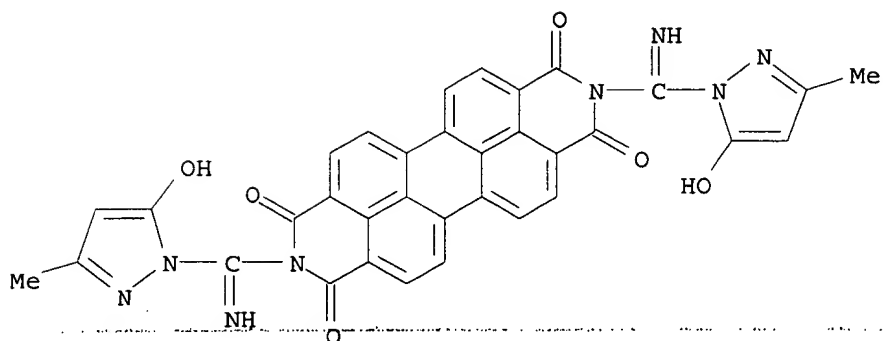
RN 143992-62-5 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-2,9-dicarboximidamide,
 1,3,8,10-tetrahydro-1,3,8,10-tetraoxo- (9CI) (CA INDEX NAME)



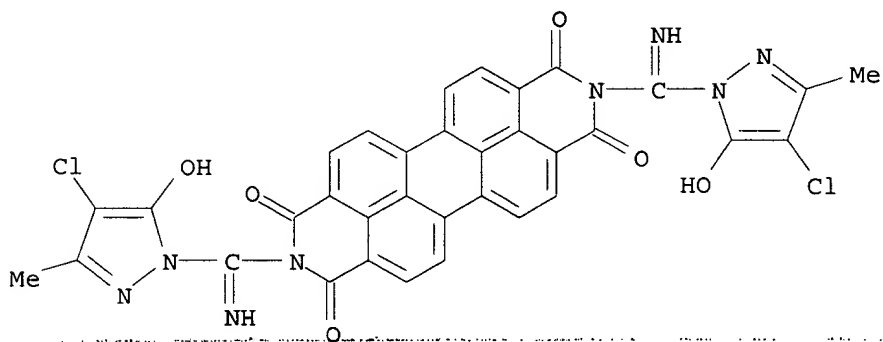
RN 143992-63-6 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-2,9-dicarboximidamide,
 N,N''-bis(aminocarbonyl)-1,3,8,10-tetrahydro-1,3,8,10-tetraoxo- (9CI) (CA
 INDEX NAME)



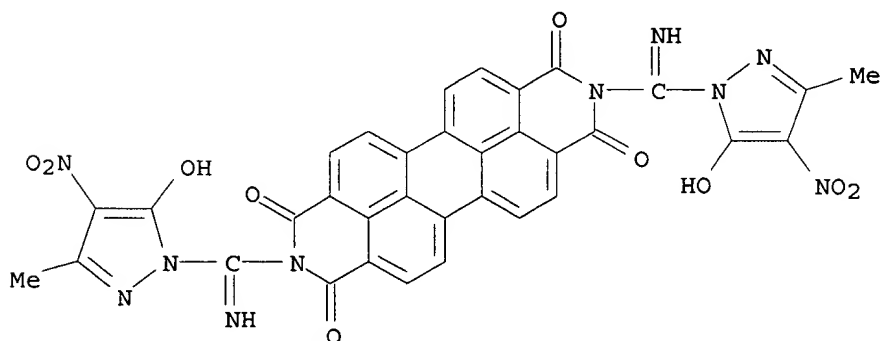
RN 143992-64-7 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
 2,9-bis[(5-hydroxy-3-methyl-1H-pyrazol-1-yl)iminomethyl]- (9CI) (CA INDEX
 NAME)



RN 143992-65-8 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
 2,9-bis[(4-chloro-5-hydroxy-3-methyl-1H-pyrazol-1-yl)iminomethyl]- (9CI)
 (CA INDEX NAME)

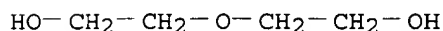


RN 143992-66-9 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
 2,9-bis[(5-hydroxy-3-methyl-4-nitro-1H-pyrazol-1-yl)iminomethyl]- (9CI)
 (CA INDEX NAME)



IT 111-46-6, uses
 RL: USES (Uses)
 (solvent, for condensation of perylenetetracarboxylic dianhydride with
 amines)

RN 111-46-6 HCAPLUS
 CN Ethanol, 2,2'-oxybis- (9CI) (CA INDEX NAME)



L16 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:552769 HCAPLUS

DOCUMENT NUMBER: 117:152769

TITLE: Preparation of perylenetetracarboxylic diimides

INVENTOR(S): Kleine, Fritz

PATENT ASSIGNEE(S): Chemie A.-G. Bitterfeld-Wolfen, Germany

SOURCE: Ger. (East), 4 pp.

CODEN: GEXXA8

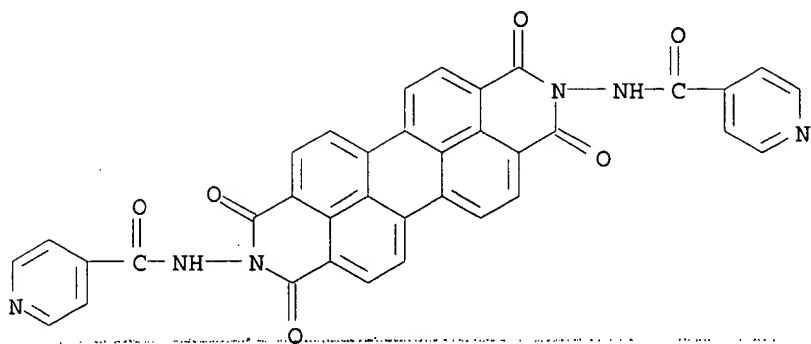
DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|--|----------|-----------------|----------|
| DD 299734 | A7 | 19920507 | DD 1980-226328 | 19801223 |
| PRIORITY APPLN. INFO.: | | | DD 1980-226328 | 19801223 |
| AB Diimide pigments are obtained from perylenetetracarboxylic acid or its dianhydride (I) and amino, amidino, or hydrazino compds. by heating at 130-280.degree. in C5-12 mono-, di-, or trihydric alcs. or their (partial) ethers or esters, arylaliph. alcs., or their esters. Thus, a mixt. of diethylene glycol 100, I 30, and isonicotinic acid hydrazide 24.8 parts was heated at 110-120.degree. and then 40 min at 220.degree. to give 48 parts bright red pigment. | | | | |
| IC | ICM C09B005-62 | | | |
| CC | 41-5. (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers) | | | |
| IT | 143676-73-7P | | | |
| | RL: IMF (Industrial manufacture); PREP (Preparation) (prepn. of, as red pigment) | | | |
| IT | 111-46-6, uses | | | |
| | RL: USES (Uses) (solvents, in prepn. of pigments from perylenetetracarboxylic dianhydride and amino, amidino or hydrazino compds.) | | | |
| IT | 143676-73-7P | | | |
| | RL: IMF (Industrial manufacture); PREP (Preparation) (prepn. of, as red pigment) | | | |
| RN | 143676-73-7 HCAPLUS | | | |
| CN | 4-Pyridinecarboxamide, N,N'-(1,3,8,10-tetrahydro-1,3,8,10-tetraoxoanthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-2,9-diyl)bis- (9CI) (CA INDEX NAME) | | | |



IT 111-46-6, uses
 RL: USES (Uses)
 (solvents, in prepn. of pigments from perylenetetracarboxylic dianhydride and amino, amidino or hydrazino compds.)
 RN 111-46-6 HCAPLUS
 CN Ethanol, 2,2'-oxybis- (9CI) (CA INDEX NAME)

HO-CH₂-CH₂-O-CH₂-CH₂-OH

L18 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:693662 HCAPLUS

DOCUMENT NUMBER: 135:269657

TITLE: **Biomarkers for the labeling, visual detection and quantification of biomolecules**

INVENTOR(S): Bevers, Susan Ann; Andrade, Rodrigo Bohn; Alexandrov, Kiril Stefan; Zdraveski, Zoran Zare

PATENT ASSIGNEE(S): Genigma Corporation, USA

SOURCE: PCT Int. Appl., 54 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|----------|
| WO 2001069254 | A2 | 20010920 | WO 2001-US7885 | 20010313 |
| WO 2001069254 | A3 | 20020530 | | |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| US 2002012947 | A1 | 20020131 | US 2001-804893 | 20010313 |
| EP 1266222 | A2 | 20021218 | EP 2001-918584 | 20010313 |

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

PRIORITY APPLN. INFO.:

US 2000-189264P P 20000314
US 2000-209188P P 20000605
WO 2001-US7885 W 20010313

OTHER SOURCE(S): MARPAT 135:269657

AB This invention relates to the detection of biomols. In particular, the invention relates to biomarkers for the labeling, visual detection and quantification of biomols. The invention provides visually detectable biomols. and reagents for their prepn., as well as methods for visually detecting a biomol. and for detg. the size of a biomol. The labeled biomols. of the invention are intensely colored and can be readily obsd. by visual inspection, without prior illumination or chem. or enzymic activation.

IC ICM G01N033-532

ICS C12Q001-68; G01N033-52; G01N033-68; C09B062-00

CC 9-14 (Biochemical Methods)

ST **biomarker** labeling **biomol** DNA array proteins mol wt migration

IT Proteins, specific or class

RL: ANT (Analyte); PRP (Properties); ANST (Analytical study)
(DNA-binding; **biomarkers** for labeling, visual detection and quantification of **biomols.**)

IT Immunoglobulins

Proteins, specific or class

RL: ANT (Analyte); ANST (Analytical study)

(G; **biomarkers** for labeling, visual detection and quantification of **biomols.**)

IT DNA microarray technology

Diffusion

Dyes

Lymphocyte

Microscopy

Molecular weight

Nucleic acid hybridization

Standard substances, analytical

Test kits

(**biomarkers** for labeling, visual detection and quantification of **biomols.**)

IT Amino acids, reactions

Antibodies

Carbohydrates, reactions

Enzymes, reactions

Glycoproteins, general, reactions

Nucleic acids

Proteins, general, reactions

Receptors

RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study);

RACT (Reactant or reagent); USES (Uses)

(**biomarkers** for labeling, visual detection and quantification of **biomols.**)

IT DNA

RNA

RL: ANT (Analyte); ARG (Analytical reagent use); RCT (Reactant); ANST

(Analytical study); RACT (Reactant or reagent); USES (Uses)

(ladder; **biomarkers** for labeling, visual detection and quantification of **biomols.**)

IT Analytical apparatus

Microanalysis

(microarray, carbohydrate; **biomarkers** for labeling, visual

detection and quantification of **biomols.**)

IT Ligands
 RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study);
 RACT (Reactant or reagent); USES (Uses)
 (receptor; **biomarkers** for labeling, visual detection and
 quantification of **biomols.**)

IT 198-55-ODP, Perylene, derivs. 361335-58-2P 361335-59-3P
 361335-60-6P 361335-61-7P 361335-62-8P
 RL: ARG (Analytical reagent use); RCT (Reactant); SPN (Synthetic
 preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant
 or reagent); USES (Uses)
 (**biomarkers** for labeling, visual detection and quantification
 of **biomols.**)

IT 361335-77-5P
 RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST
 (Analytical study); PREP (Preparation); USES (Uses)
 (**biomarkers** for labeling, visual detection and quantification
 of **biomols.**)

IT 74-89-5, Methylamine, reactions 75-09-2D, Dichloromethane, anhyd.
 123-75-1, Pyrrolidine, reactions 128-69-8, Perylenetetracarboxylic
 dianhydride 288-32-4, Imidazole, reactions 429-41-4,
 Tetrabutylammonium fluoride 538-75-0, Dicyclohexylcarbodiimide
 929-06-6, 2-(2-Aminoethoxy)ethanol 998-40-3, Tributyl phosphine
 5970-45-6, Zinc acetate dihydrate 6066-82-6, N-Hydroxysuccinimide
 7087-68-5, Diisopropylethylamine 7726-95-6, Bromine, reactions
 9013-20-1, Streptavidin 15663-27-1, Cisplatin 18162-48-6,
 tert-Butyldimethylsilyl chloride 89992-70-1 361335-73-1
 361335-75-3 361335-79-7
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (**biomarkers** for labeling, visual detection and quantification
 of **biomols.**)

IT 118129-60-5P, 1,7-Dibromoperylene-3,4,9,10-tetracarboxylic dianhydride
 215297-17-9P 286014-33-3P 361335-63-9P 361335-64-0P
 361335-65-1P 361335-67-3P 361335-69-5P
 361335-71-9P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (**biomarkers** for labeling, visual detection and quantification
 of **biomols.**)

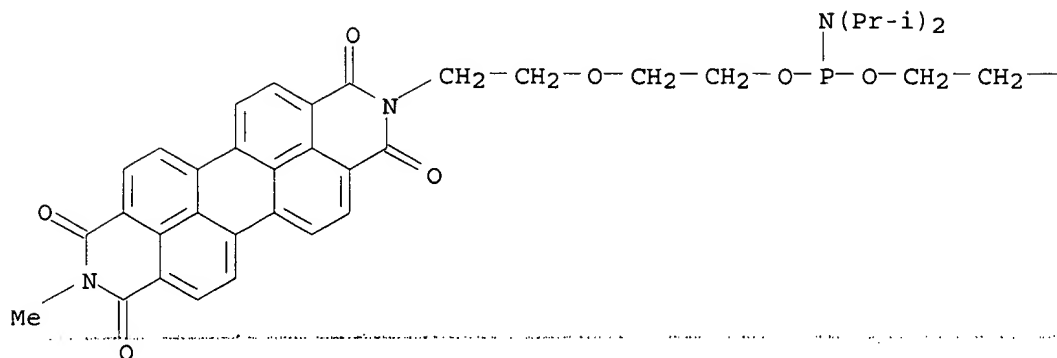
IT 362541-79-5
 RL: PRP (Properties)
 (unclaimed sequence; **biomarkers** for the labeling, visual
 detection and quantification of **biomols.**)

IT 361335-58-2P 361335-59-3P 361335-60-6P
 361335-61-7P 361335-62-8P
 RL: ARG (Analytical reagent use); RCT (Reactant); SPN (Synthetic
 preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant
 or reagent); USES (Uses)
 (**biomarkers** for labeling, visual detection and quantification
 of **biomols.**)

RN 361335-58-2 HCAPLUS

CN Phosphoramidous acid, bis(1-methylethyl)-, 2-cyanoethyl
 2-[2-(3,8,9,10-tetrahydro-9-methyl-1,3,8,10-tetraoxoanthra[2,1,9-
 def:6,5,10-d'e'f']diisoquinolin-2(1H)-yl)ethoxy]ethyl ester (9CI) (CA
 INDEX NAME)

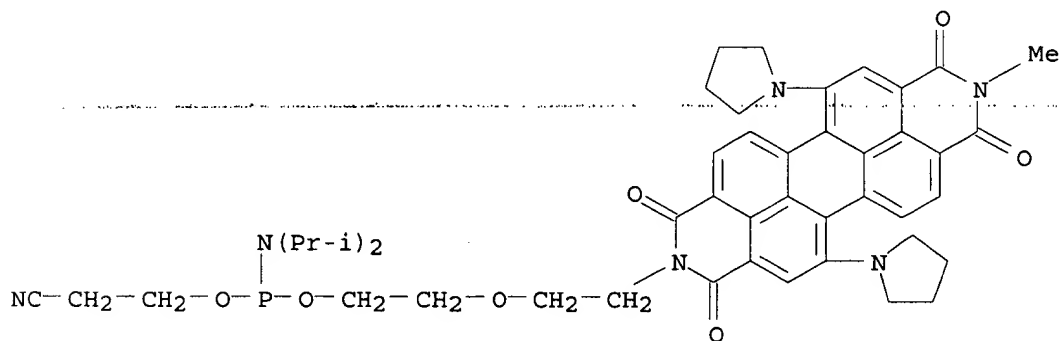
PAGE 1-A



PAGE 1-B

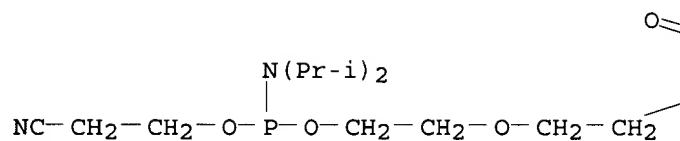
— CN

RN 361335-59-3 HCAPLUS
 CN Phosphoramidous acid, bis(1-methylethyl)-, 2-cyanoethyl
 2-[2-(3,8,9,10-tetrahydro-9-methyl-1,3,8,10-tetraoxo-5,12-di-1-
 pyrrolidinylanthra[2,1,9-def:6,5,10-d'e'f']diisoquinolin-2(1H)-
 yl)ethoxy]ethyl ester (9CI) (CA INDEX NAME)

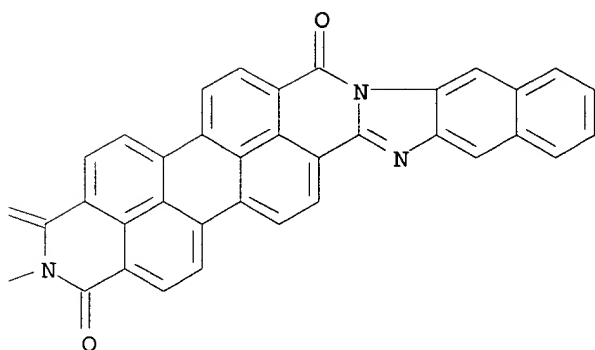


RN 361335-60-6 HCAPLUS
 CN Phosphoramidous acid, bis(1-methylethyl)-, 2-cyanoethyl
 2-[2-(3,8-dihydro-1,3,8-trioxoisoquino[6',5',4':10,5,6]anthra[2,1,9-
 def]naphth[2',3':4,5]imidazo[2,1-a]isoquinolin-2(1H)-yl)ethoxy]ethyl ester
 (9CI) (CA INDEX NAME)

PAGE 1-A

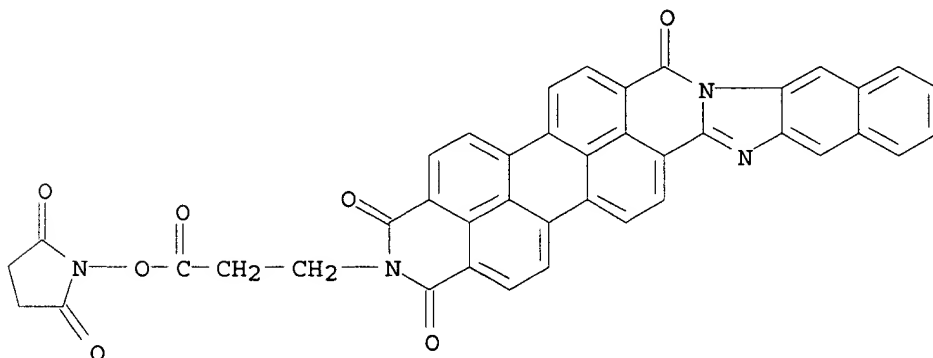


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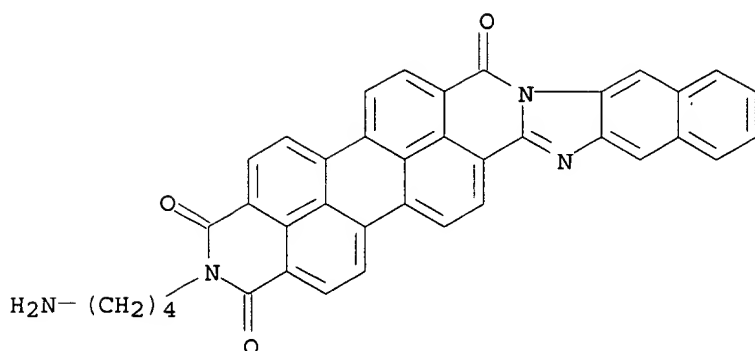
RN 361335-61-7 HCAPLUS

CN Isoquino[6',5',4':10,5,6] anthra[2,1,9-def] naphth[2',3':4,5] imidazo[2,1-a] isoquinoline-1,3,8(2H)-trione, 2-[3-[(2,5-dioxo-1-pyrrolidinyl)oxy]-3-oxopropyl]- (9CI) (CA INDEX NAME)



RN 361335-62-8 HCAPLUS

CN Isoquino[6',5',4':10,5,6] anthra[2,1,9-def] naphth[2',3':4,5] imidazo[2,1-a] isoquinoline-1,3,8(2H)-trione, 2-(4-aminobutyl)- (9CI) (CA INDEX NAME)



IT 361335-77-5P

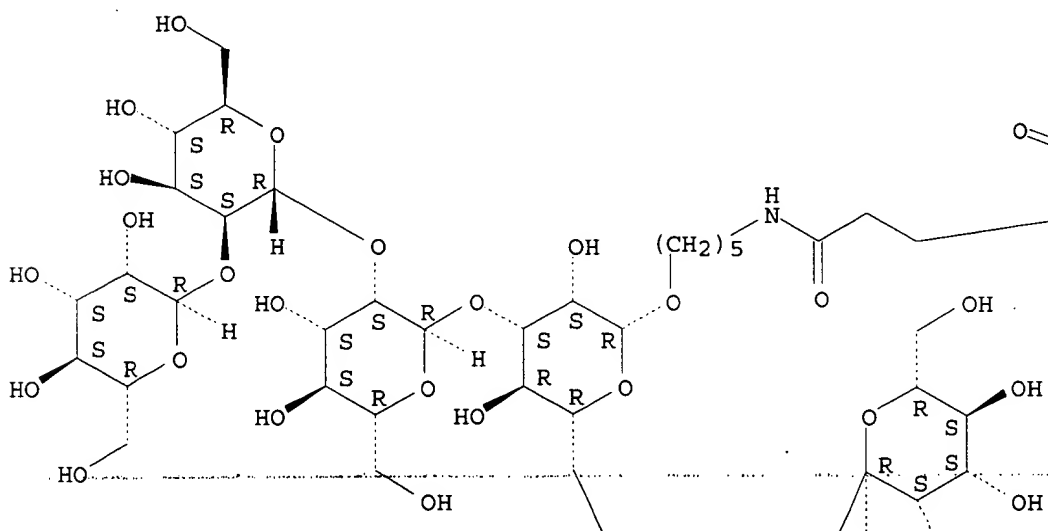
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST
(Analytical study); PREP (Preparation); USES (Uses)
(biomarkers for labeling, visual detection and quantification
of biomols.)

RN 361335-77-5 HCAPLUS

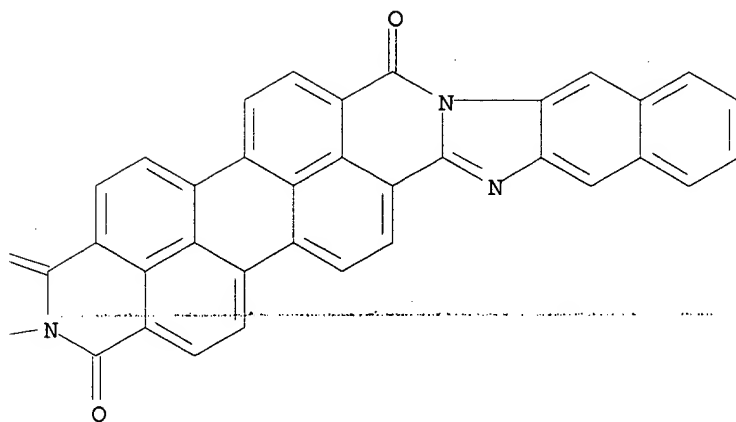
CN Isoquino[6',5',4':10,5,6]anthra[2,1,9-def]naphth[2',3':4,5]imidazo[2,1-
a]isoquinoline-2(1H)-propanamide, 3,8-dihydro-N-[5-[(O-.alpha.-D-
mannopyranosyl-(1.fwdarw.2)-O-.alpha.-D-mannopyranosyl-(1.fwdarw.2)-O-[O-
.alpha.-D-mannopyranosyl-(1.fwdarw.2)-.alpha.-D-mannopyranosyl-
(1.fwdarw.3)]-O-.alpha.-D-mannopyranosyl-(1.fwdarw.6)-O-[O-.alpha.-D-
mannopyranosyl-(1.fwdarw.2)-O-.alpha.-D-mannopyranosyl-(1.fwdarw.2)-
.alpha.-D-mannopyranosyl-(1.fwdarw.3)]-.beta.-D-mannopyranosyl)oxy]pentyl]-
1,3,8-trioxo- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

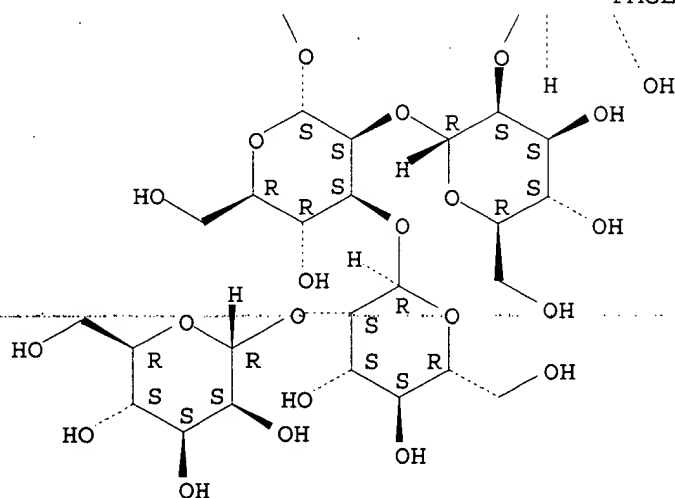
PAGE 1-A



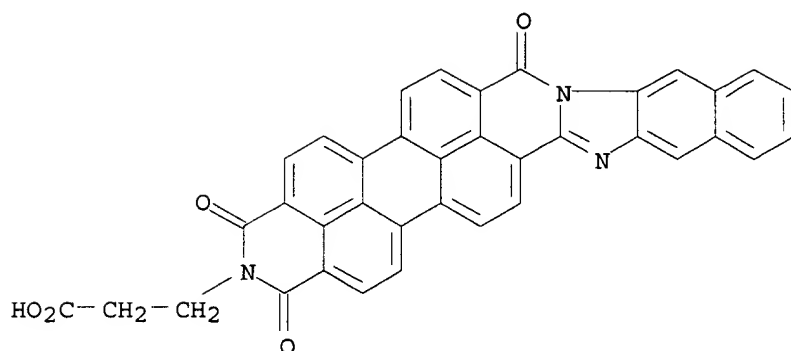
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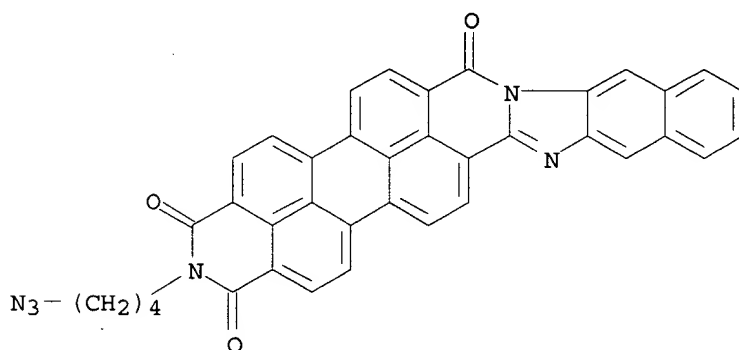
PAGE 2-A



IT 361335-73-1 361335-75-3
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (biomarkers for labeling, visual detection and quantification
 of biomols.)
 RN 361335-73-1 HCAPLUS
 CN Isoquino[6',5',4':10,5,6]anthra[2,1,9-def]naphth[2',3':4,5]imidazo[2,1-
 a]isoquinoline-2(1H)-propanoic acid, 3,8-dihydro-1,3,8-trioxo- (9CI) (CA
 INDEX NAME)

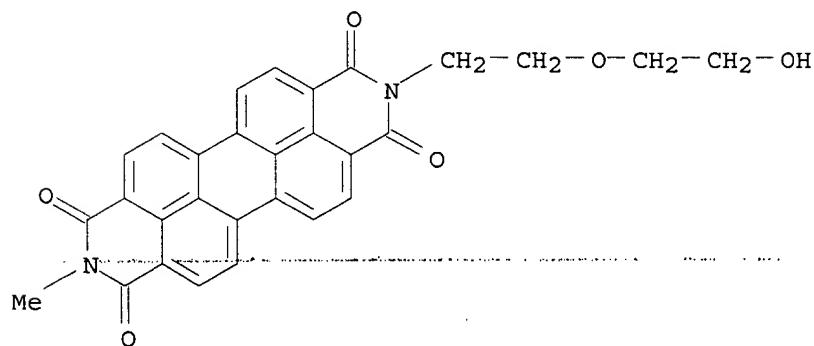


RN 361335-75-3 HCAPLUS
 CN Isoquino[6',5',4':10,5,6]anthra[2,1,9-def]naphth[2',3':4,5]imidazo[2,1-a]isoquinoline-1,3,8(2H)-trione, 2-(4-azidobutyl)- (9CI) (CA INDEX NAME)

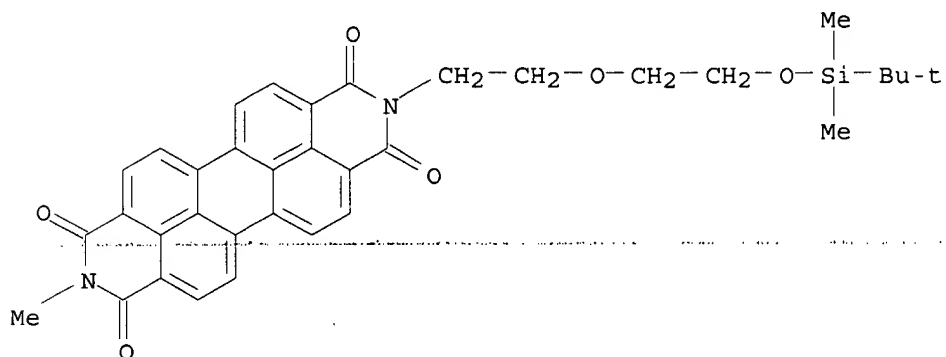


IT 286014-33-3P 361335-64-0P 361335-67-3P
 361335-69-5P 361335-71-9P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (biomarkers for labeling, visual detection and quantification of biomols.)

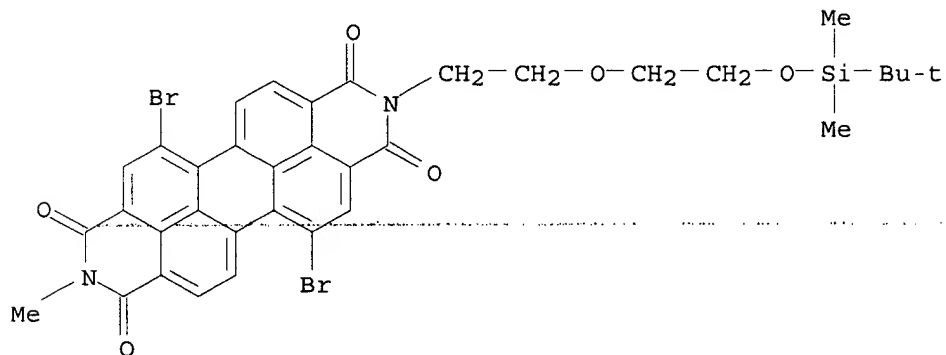
RN 286014-33-3 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2-[2-(2-hydroxyethoxy)ethyl]-9-methyl- (9CI) (CA INDEX NAME)



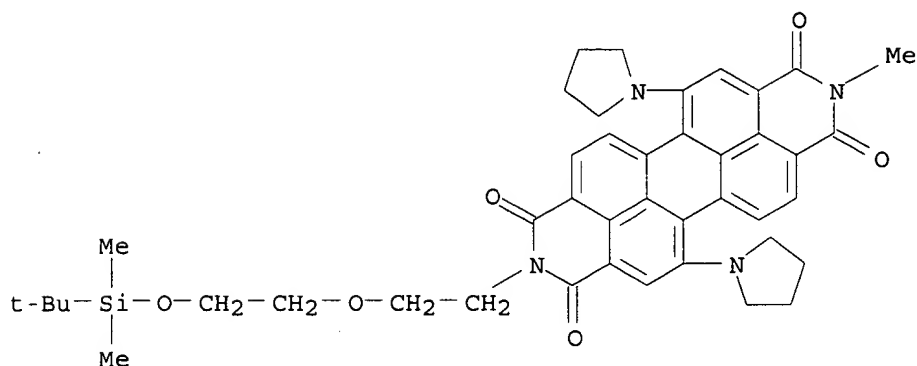
RN 361335-64-0 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
 2-[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]-9-methyl-
 (9CI) (CA INDEX NAME)



RN 361335-67-3 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
 5,12-dibromo-2-[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]-
 9-methyl- (9CI) (CA INDEX NAME)

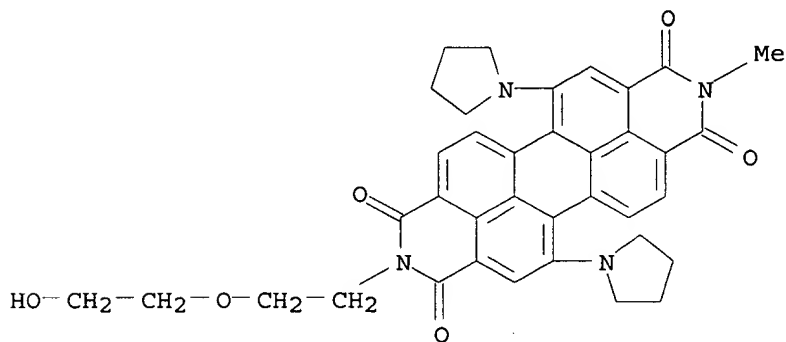


RN 361335-69-5 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
 2-[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]-9-methyl-5,12-
 di-1-pyrrolidinyl- (9CI) (CA INDEX NAME)



RN 361335-71-9 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2-[2-(2-hydroxyethoxy)ethyl]-9-methyl-5,12-di-1-pyrrolidinyl- (9CI) (CA
INDEX NAME)



L18 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:9238 HCAPLUS

DOCUMENT NUMBER: 126:33591

TITLE: Biological adsorption supports from metal coated submicron crystalline whiskers

INVENTOR(S): Coleman, Patrick L.; Debe, Mark K.; Stahl, Julie B.

PATENT ASSIGNEE(S): Minnesota Mining and Mfg. Co., USA

SOURCE: PCT Int. Appl., 40 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|----------|
| WO 9634670 | A1 | 19961107 | WO 1996-US4485 | 19960401 |
| W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI | | | | |
| RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML | | | | |

| | | | | |
|------------|----|----------|-----------------|----------|
| CA 2218888 | AA | 19961107 | CA 1996-2218888 | 19960401 |
| AU 9655313 | A1 | 19961121 | AU 1996-55313 | 19960401 |
| EP 823857 | A1 | 19980218 | EP 1996-912525 | 19960401 |
| EP 823857 | B1 | 20020717 | | |

R: DE, FR, GB, IT

| | | | | |
|-------------|----|----------|----------------|----------|
| CN 1183735 | A | 19980603 | CN 1996-193700 | 19960401 |
| JP 11504852 | T2 | 19990511 | JP 1996-533302 | 19960401 |

PRIORITY APPLN. INFO.:

US 1995-434930 A 19950504

WO 1996-US4485 W 19960401

AB The biol. assay and adsorption supports comprise an inert substrate, preferably a polyimide film such as KAPTON, supporting a nanostructured surface contg. metal coated, oriented, discrete submicron-size whiskers, preferably of cryst. C.I. Pigment Red 149 [N,N'-Di(3,5-xylyl)perylene-3,4:9,10-bis(dicarboximide)]. The metal coating is a noble metal, e.g., Cu, Pt, CoCr, Fe. Optionally, conformally metal coated whiskers may be partially encapsulated or conformally coated with a second material, e.g., a latex precursor, YR-43. The nanostructured surface adsorbs biomols. rapidly at high levels of tight binding without vortexing or agitation. Advantageously, the bound biomols. retain their biol. activity. The adsorbents can be used in separators, sensors, immunoassays, extn. app., filters.

IC ICM B01D015-00

ICS G01N033-53; B01J020-32

CC 47-2 (Apparatus and Plant Equipment)

Section cross-reference(s): 9, 34, 63

ST biomol adsorbent metal coated cryst whisker

IT Proteins, specific or class

RL: PUR (Purification or recovery); REM (Removal or disposal); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

(A; metal-coated cryst. whisker adsorbent for biomols. with bioactivity retention)

IT Immunoglobulins

RL: PUR (Purification or recovery); REM (Removal or disposal); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

(G, antibody; metal-coated cryst. whisker adsorbent for biomols with bioactivity retention)

IT Antibodies

RL: PUR (Purification or recovery); REM (Removal or disposal); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

(IgG; metal-coated cryst. whisker adsorbent for biomols. with bioactivity retention)

IT Reactors

(catalytic; metal-coated cryst. whisker adsorbent for biomols with bioactivity retention)

IT Adsorption apparatus

Biochemical molecules

Extraction apparatus

Filters

Immunoassay

Sensors

(metal-coated cryst. whisker adsorbent for biomols. with bioactivity retention)

IT Noble metals

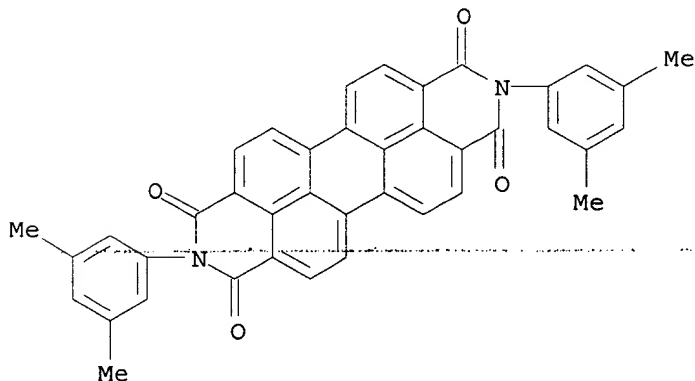
Platinum-group metals

Polyimides, uses

RL: DEV (Device component use); USES (Uses)

(metal-coated cryst. whisker adsorbent for biomols. with

- bioactivity retention)
- IT Proteins, general, uses
 RL: PUR (Purification or recovery); REM (Removal or disposal); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
 (metal-coated cryst. whisker adsorbent for **biomols.** with bioactivity retention)
- IT Albumins, uses
 RL: PUR (Purification or recovery); REM (Removal or disposal); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
 (serum; metal-coated cryst. whisker adsorbent for **biomols.** with bioactivity retention)
- IT 4948-15-6, N,N'-Di(3,5-xylyl)perylene-3,4:9,10-bis(dicarboximide)
 7439-89-6, Iron, uses 7440-06-4, Platinum, uses 7440-50-8, Copper, uses 11114-92-4 25036-53-7, Kapton 147705-54-2, Yr 43
 RL: DEV (Device component use); USES (Uses)
 (metal-coated cryst. whisker adsorbent for **biomols.** with bioactivity retention)
- IT 4948-15-6, N,N'-Di(3,5-xylyl)perylene-3,4:9,10-bis(dicarboximide)
 RL: DEV (Device component use); USES (Uses)
 (metal-coated cryst. whisker adsorbent for **biomols.** with bioactivity retention)
- RN 4948-15-6 HCAPLUS
- CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2,9-bis(3,5-dimethylphenyl)- (9CI) (CA INDEX NAME)



L20 ANSWER 1 OF 6 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:450251 HCAPLUS

DOCUMENT NUMBER: 137:17455

TITLE: **Linker** molecules for selective metalization of nucleic acids and their uses

INVENTOR(S): Ford, William; Wessels, Jurina; Yasuda, Akio

PATENT ASSIGNEE(S): Germany

SOURCE: U.S. Pat. Appl. Publ., 21 pp.
 CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|----------|
| US 2002072069 | A1 | 20020613 | US 2001-8179 | 20011207 |
| EP 1215199 | A1 | 20020619 | EP 2000-126966 | 20001208 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR | | | | |
| JP 2003026643 | A2 | 20030129 | JP 2001-371836 | 20011205 |
| CN 1357536 | A | 20020710 | CN 2001-143128 | 20011210 |

PRIORITY APPLN. INFO.:

EP 2000-126966 A 20001208

AB The invention concerns to linker mols. comprising one or more nucleic acid binding group and one or more nanoparticle binding group which are connected covalently by a spacer group. The problem underlying the present invention is to provide methods for the controlled and selective metalization of nucleic acids, the prodn. of nanowires which may be used, e.g., in the formation of electronic networks and circuits allowing a high d. arrangement, and the components of devices that may be incorporated in such networks and circuits. This problem is solved by a linker mol. which comprises one or more nucleic acid binding group(s) and one or more nanoparticle binding group(s) which are connected covalently by a spacer group. Such linkers can be used for the manuf. of nucleic acid/linker conjugates, nanoparticle/linker conjugates, and nanoparticle/linker/nucleic acid composites and further nanowires, electronic networks, electronic circuits and junctions comprising said nanowires.

IC ICM C12Q001-68

ICS C07H021-04; C07D043-02; C07D471-06; C07D487-22

NCL 435006000

CC 9-16 (Biochemical Methods)

Section cross-reference(s): 6

ST **linker** nucleic acid nanoparticle complex metalization
immobilization nanowire

IT Intercalation

(agents; **linker** mols. for selective metalization of nucleic acids and uses)

IT Alcohols, biological studies

~~Aldehydes, biological studies~~

Amines, biological studies

Carboxylic acids, biological studies

Coordination compounds

Disulfides

Epoxides

Ethers, biological studies

Halides

Isocyanates

Isothiocyanates

Ketones, biological studies

Phosphines

Porphyrins

Sulfonic acids, biological studies

Thioethers

Thiols (organic), biological studies

Viologens

RL: BSU (Biological study, unclassified); PRP (Properties); BIOL
(Biological study)

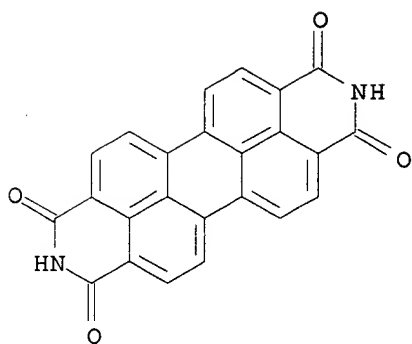
(as **linkers**; **linker** mols. for selective
metalization of nucleic acids and uses)

IT Nucleic acids

RL: BSU (Biological study, unclassified); PRP (Properties); BIOL

- (Biological study)
(conjugates with **linkers** and/or nanoparticles; **linker** mols. for selective metalization of nucleic acids and uses)
- IT Bond
(covalent; **linker** mols. for selective metalization of nucleic acids and uses)
- IT Sulfoxides
RL: PRP (Properties)
(di-alkyl derivs.; **linker** mols. for selective metalization of nucleic acids and uses)
- IT Carboxylic acids, properties
RL: PRP (Properties)
(esters, substituted; **linker** mols. for selective metalization of nucleic acids and uses)
- IT Binders
(groove-binding; **linker** mols. for selective metalization of ~~nucleic acids and uses~~)
- IT Alkylating agents, biological
Catalysts
Electric circuits
Immobilization, molecular
Magnetic materials
Nanoparticles
Nanowires
Solutions
(**linker** mols. for selective metalization of nucleic acids and uses)
- IT Thiosulfates
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(**linker** mols. for selective metalization of nucleic acids and uses)
- IT Alloys, uses
RL: CAT (Catalyst use); PRP (Properties); USES (Uses)
(**linker** mols. for selective metalization of nucleic acids and uses)
- IT DNA
Ligands
Nucleic acids
Oligonucleotides
Peptide nucleic acids
Primers (nucleic acid)
RNA
RL: PRP (Properties)
(**linker** mols. for selective metalization of nucleic acids and uses)
- IT Coating process
(metalization; **linker** mols. for selective metalization of nucleic acids and uses)
- IT Peptides, biological studies
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(oligopeptides, pyrrole, as **linkers**; **linker** mols. for selective metalization of nucleic acids and uses)
- IT Carboxylic acids, properties
RL: PRP (Properties)
(salts; **linker** mols. for selective metalization of nucleic acids and uses)
- IT DNA
RL: PRP (Properties)

- (single-stranded; **linker** mols. for selective metalization of nucleic acids and uses)
- IT 51-17-2D, Benzimidazole, derivs. 55-86-7, Nitrogen mustard 62-56-6, Thiourea, biological studies 66-97-7, Psoralen 75-00-3D, derivs. **81-33-4D**, derivs. 81-83-4, 1H-Benz[de]isoquinoline-1,3(2H)-dione 84-65-1, Anthraquinone 151-56-4, Aziridine, biological studies 194-00-3D, Benzo[lmn][3,8]phenanthroline, derivs. 229-87-8, Phenanthridine 260-94-6, Acridine 505-60-2, Sulfur mustard 618-39-3D, Benzamidine, derivs. 5690-24-4 16065-88-6, Pd²⁺, biological studies 16065-89-7, Rh³⁺, biological studies 19073-37-1, Dithiophosphate 20561-59-5, Rh¹⁺, biological studies 22541-31-7, Pt⁴⁺, biological studies 22541-59-9, Ru²⁺, biological studies 22541-60-2, Rh²⁺, biological studies 22541-88-4, Ru³⁺, biological studies 22542-10-5, Pt²⁺, biological studies 97542-80-8D, derivs. 121854-21-5D, Lexitropsin, derivs.
 RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
 (as **linkers**; **linker** mols. for selective metalization of nucleic acids and uses)
- IT 594-07-0, Carbamodithioic acid 25757-41-9, Phosphonodithioic acid
 RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
 (**linker** mols. for selective metalization of nucleic acids and uses)
- IT 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7440-02-0, Nickel, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-22-4, Silver, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses
 RL: CAT (Catalyst use); PRP (Properties); USES (Uses)
 (**linker** mols. for selective metalization of nucleic acids and uses)
- IT 3812-32-6, Carbonate, properties 7732-18-5, Water, properties 14265-44-2, Phosphate, properties 14265-45-3, Sulfite 14280-30-9, Hydroxide, properties 14797-55-8, Nitrate, properties 14797-65-0, Nitrite, properties 14808-79-8, Sulfate, properties
 RL: PRP (Properties)
 (~~**linker** mols. for selective metalization of nucleic acids and uses~~)
- IT **81-33-4D**, derivs.
 RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
 (as **linkers**; **linker** mols. for selective metalization of nucleic acids and uses)
- RN 81-33-4 HCAPLUS
- CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone (9CI) (CA INDEX NAME)



L20 ANSWER 2 OF 6 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:714605 HCAPLUS

DOCUMENT NUMBER: 136:126372

TITLE: Synthesis and excited-state photodynamics of perylene-porphyrin dyads Part 3. Effects of perylene, linker, and connectivity on ultrafast energy transfer

AUTHOR(S): Yang, Sung Ik; Lammi, Robin K.; Prathapan, Sreedharan; Miller, Mark A.; Seth, Jyoti; Diers, James R.; Bocian, David F.; Lindsey, Jonathan S.; Holten, Dewey

CORPORATE SOURCE: Department of Chemistry, Washington University, St. Louis, MO, 63130-4899, USA

SOURCE: Journal of Materials Chemistry (2001), 11(10), 2420-2430

CODEN: JMACEP; ISSN: 0959-9428

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB New perylene-porphyrin dyads have been designed that exhibit superior light-harvesting and energy-utilization activity compared with earlier generations of structurally related dyads. The new dyads consist of a perylene mono(imide) dye (PMI) connected to a porphyrin (Por) via an ethynylphenyl (ep) linker. The PMI-ep-Por arrays were prepd. with the porphyrin as either a zinc or magnesium complex (Por = Zn or Mg) or a free-base form (Por = Fb). The absorption properties of the perylene complement those of the porphyrin. Following excitation of the perylene (forming PMI*) in toluene, each array exhibits ultrafast ($k_{\text{ET}} \approx 0.5 \text{ ps}^{-1}$) and essentially quant. energy transfer from PMI* to the ground-state porphyrin (forming Por*). In each of the arrays, the properties of the excited porphyrin (lifetime, fluorescence yield, etc.) are basically unperturbed from those of the isolated pigment. Thus, following energy transfer, the excited porphyrin is not quenched by deleterious reactions involving the perylene accessory unit that would otherwise limit the ability of Por* to emit light or transfer energy to another stage in a mol. photonic device. Collectively, the PMI-ep-Por dyads represent the successful result of a mol. design strategy to produce arrays with excellent properties for use as light-input and energy-transduction elements for applications in mol. optoelectronics.

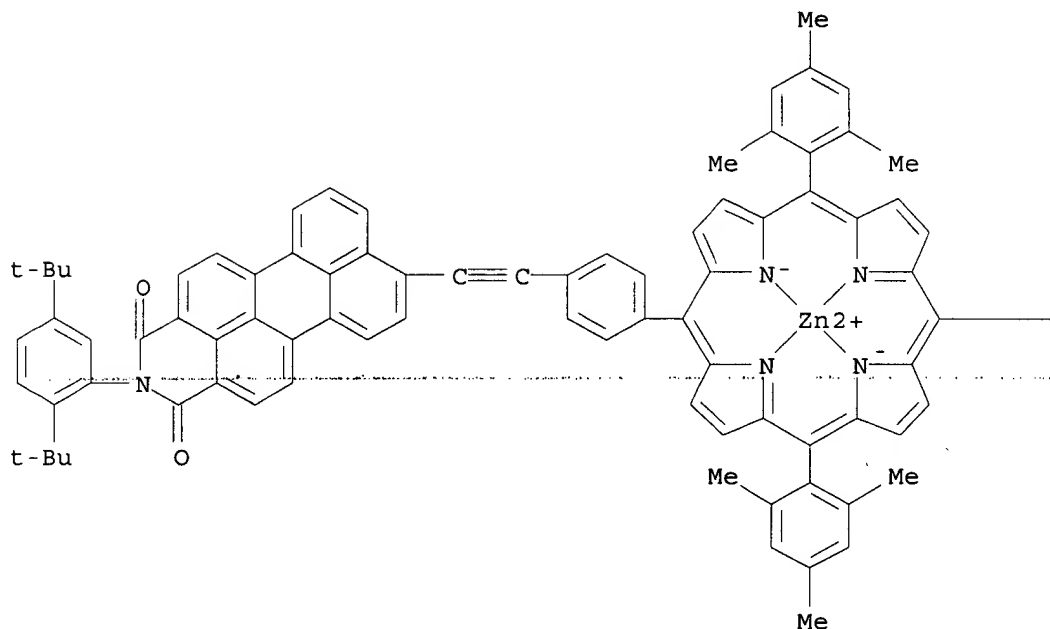
CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT Fluorescence
Photoinduced electron transfer~~Singlet-state transition~~

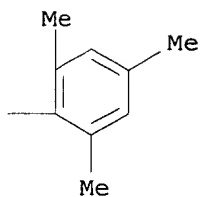
(synthesis and excited-state photodynamics of perylene-porphyrin dyads,

- effects of perylene, **linker**, and connectivity on ultrafast energy transfer)
- IT Optical switches
Oxidation potential
Reduction potential
(synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer in relation to)
- IT Intersystem crossing
(synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer in relation to heavy-atom effect)
- IT Optical absorption
(transient; synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer in relation to heavy-atom effect)
- IT Absorption spectra
(visible; synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer)
- IT 303089-28-3
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer)
- IT 303089-29-4
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer)
- IT 390823-78-6P
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer)
- IT 303089-32-9
RL: PRP (Properties)
(synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer in relation to)
- IT 591-50-4, Iodobenzene
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer in relation to heavy-atom effect)
- IT 303089-28-3
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer)
- RN 303089-28-3 HCAPLUS
- CN Zinc, [2-[2,5-bis(1,1-dimethylethyl)phenyl]-8-[[4-[10,15,20-tris(2,4,6-trimethylphenyl)-21H,23H-porphin-5-yl-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]phenyl]ethynyl]-1H-perylo[3,4-cd]pyridine-1,3(2H)-dionato(2-)]-(SP-4-2)-(9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



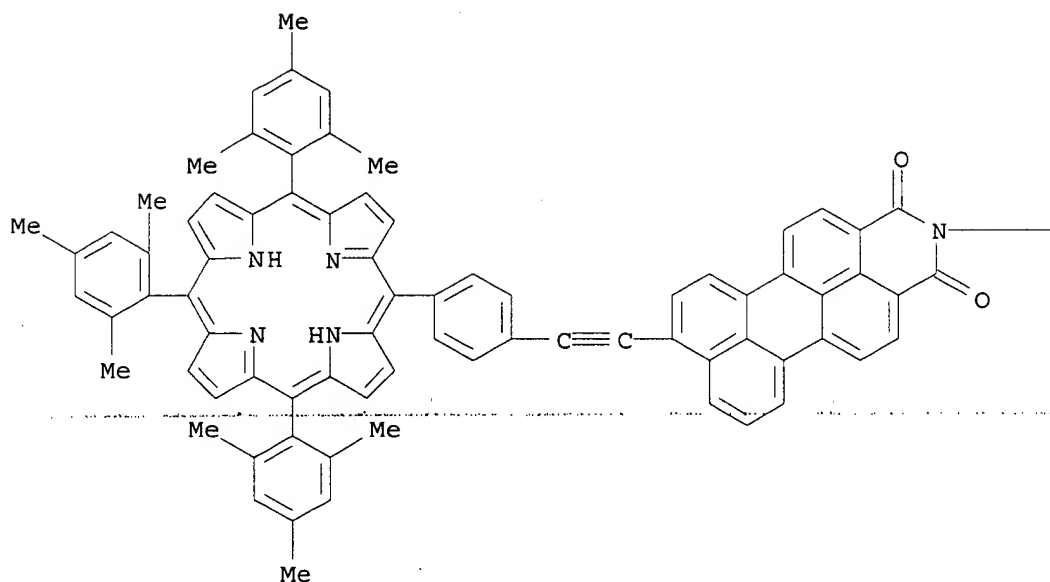
IT 303089-29-4

RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
 (synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer)

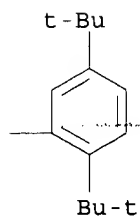
RN 303089-29-4 HCAPLUS

CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 2-[2,5-bis(1,1-dimethylethyl)phenyl]-8-[[4-[10,15,20-tris(2,4,6-trimethylphenyl)-21H,23H-porphin-5-yl]phenyl]ethynyl]-(9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



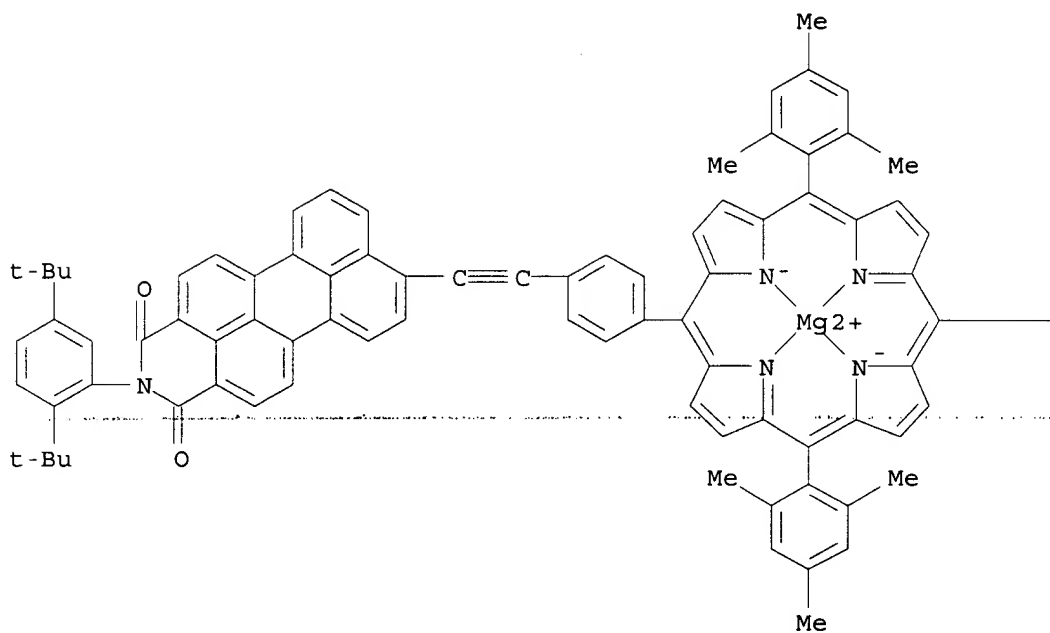
IT 390823-78-6P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
 (synthesis and excited-state photodynamics of perylene-porphyrin dyads, effects of perylene, **linker**, and connectivity on ultrafast energy transfer)

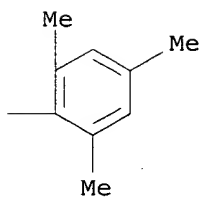
RN 390823-78-6 HCAPLUS

CN Magnesium, [2-[2,5-bis(1,1-dimethylethyl)phenyl]-8-[[4-[10,15,20-tris(2,4,6-trimethylphenyl)-21H,23H-porphin-5-yl-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]phenyl]ethynyl]-1H-perylo[3,4-cd]pyridine-1,3(2H)-dionato(2-)]-, (SP-4-2)-(9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



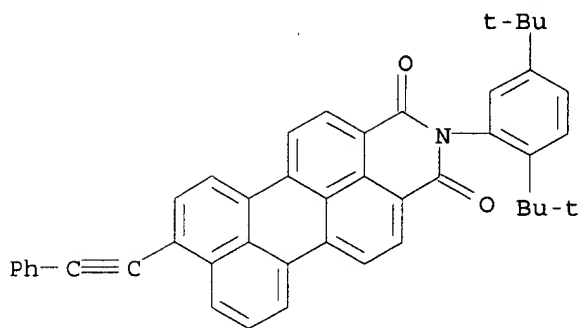
IT 303089-32-9

RL: PRP (Properties)

(synthesis and excited-state photodynamics of perylene-porphyrin dyads,
effects of perylene, **linker**, and connectivity on ultrafast
energy transfer in relation to)

RN 303089-32-9 HCAPLUS

CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 2-[2,5-bis(1,1-
dimethylethyl)phenyl]-8-(phenylethynyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 3 OF 6 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:555603 HCAPLUS

DOCUMENT NUMBER: 135:325130

TITLE: Synthesis and Excited-State Photodynamics in Perylene-Porphyrin Dyads 2. Effects of Porphyrin Metalation State on the Energy-Transfer, Charge-Transfer, and Deactivation Channels

AUTHOR(S): Yang, Sung Ik; Prathapan, Sreedharan; Miller, Mark A.; Seth, Jyoti; Bocian, David F.; Lindsey, Jonathan S.; Holten, Dewey

CORPORATE SOURCE: Department of Chemistry, North Carolina State University, Raleigh, NC, 27695-8204, USA

SOURCE: Journal of Physical Chemistry B (2001), 105(34), 8249-8258

CODEN: JPCBPK; ISSN: 1089-5647

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The photophys. properties of two perylene-porphyrin dyads have been examd. in detail with the aim of expanding the functional utility of these constructs for mol. optoelectronics applications. The dyads consist of a perylene-bis(imide) dye (PDI) connected to either a magnesium porphyrin (Mg) or a free base porphyrin (Fb) via a diphenylethyne (pep) linker. The photophys. behavior of these two dyads show both similarities and differences to one another and to the dyad contg. a zinc porphyrin (Zn) that was examd. in the previous paper in this series. In the case of both PDI-pep-Fb and PDI-pep-Mg in toluene, the excited perylene unit (PDI*) decays rapidly (Fb = 2.9 ps; Mg = 2.5 ps) by energy transfer to the porphyrin forming PDI-pep-Por* in relatively high yield (Fb .apprx. 85%; Mg .apprx. 50%) and hole transfer to the porphyrin forming PDI--pep-Por+ (Fb .apprx. 15%; Mg .apprx. 50%). This behavior parallels that obsd. for PDI-pep-Zn, for which rapid (2.5 ps) decay of PDI* affords PDI-pep-Zn* and PDI--pep-Por+ with yields of 80% and 20%, resp. The subsequent behavior of the Fb-contg. dyad is distinctly different in two ways from that of the Zn or Mg porphyrin-contg. dyads.: (1) charge recombination within PDI--pep-Fb+ primarily forms PDI-pep-Fb*, thereby complementing the formation of the latter species from PDI*-pep-Fb.; (2) PDI-pep-Fb* subsequently decays to the ground state via fluorescence emission with a rate and yield that are nearly identical to those of an isolated Fb porphyrin. In contrast, for both PDI-pep-Mg and PDI-pep-Zn, the predominant decay process for PDI-pep-Por* is electron-transfer yielding PDI--pep-Por+ (Zn .apprx. 80%; Mg >99%). The rapid electron-transfer

quenching of PDI-pep-Por* and the nonemissive character of PDI--pep-Por+ leads to negligible fluorescence from the two metalloporphyrin-contg. dyads after photoexcitation. The PDI--pep-Por+ charge-sepd. product with Por = Mg or Zn is very long-lived (>10 ns) in toluene but decays much more rapidly (<0.5 ns) in acetonitrile. The differences in the rates of the various charge-transfer and charge-recombination processes of all of the dyads are consistent with a rate vs. free-energy-gap profile (based on the relative redox potentials of the porphyrin constituents) that is in qual. accord with electron-transfer theory. Collectively, the studies reported in this and the previous paper indicate that PDI-pep-Fb has the greatest potential utility in photonics applications wherein light harvesting by an accessory pigment, energy transport to an output chromophore, and emission (or energy transfer to another chromophore) are desired. On the other hand, PDI-pep-Mg (like PDI-pep-Zn) would be most useful as an all-optical gating element in which excited-state energy in an appended chromophore chain can be quenched by the charge-sepd. state of the perylene-porphyrin dyad, thereby shunting the light output or flow of energy.

CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 22

IT UV and visible spectra

(absorption; photophys. properties of dyads consisting of perylene-bis(imide) connected to either magnesium porphyrin or free base porphyrin via adiphenylethyne linker)

IT Electron transfer kinetics

(intramol., photochem.; photophys. properties of dyads consisting of perylene-bis(imide) connected to either magnesium porphyrin or free base porphyrin via adiphenylethyne linker)

IT Photoinduced energy transfer

(intramol.; photophys. properties of dyads consisting of perylene-bis(imide) connected to either magnesium porphyrin or free base porphyrin via adiphenylethyne linker)

IT Radical ions

(pairs, intramol.; photophys. properties of dyads consisting of perylene-bis(imide) connected to either magnesium porphyrin or free base porphyrin via adiphenylethyne linker)

IT Intramolecular energy transfer

(photoinduced; photophys. properties of dyads consisting of perylene-bis(imide) connected to either magnesium porphyrin or free base porphyrin via adiphenylethyne linker)

IT Absorption spectra

Fluorescence

Fluorescence decay

Photoinduced intramolecular electron transfer

Physical process kinetics

Solvent polarity effect

(photophys. properties of dyads consisting of perylene-bis(imide) connected to either magnesium porphyrin or free base porphyrin via adiphenylethyne linker)

IT Photonics

(photophys. properties of dyads consisting of perylene-bis(imide) connected to either magnesium porphyrin or free base porphyrin via adiphenylethyne linker in relation to)

IT 359862-69-4

RL: PRP (Properties)

(comparison compd.; photophys. properties of dyads consisting of perylene-bis(imide) connected to either magnesium porphyrin or free base porphyrin via adiphenylethyne linker)

IT 367889-52-9P 367906-89-6P

RL: PEP (Physical; engineering or chemical process); PRP (Properties); SPN

(Synthetic preparation); PREP (Preparation); PROC (Process)
(photophys. properties of dyads consisting of perylene-bis(imide)
connected to either magnesium porphyrin or free base porphyrin via
adiphenylethyne linker)

IT 75-05-8, Acetonitrile, properties 108-88-3, Toluene, properties

RL: PRP (Properties)

(photophys. properties of dyads consisting of perylene-bis(imide)
connected to either magnesium porphyrin or free base porphyrin via
adiphenylethyne linker)

IT 359862-69-4

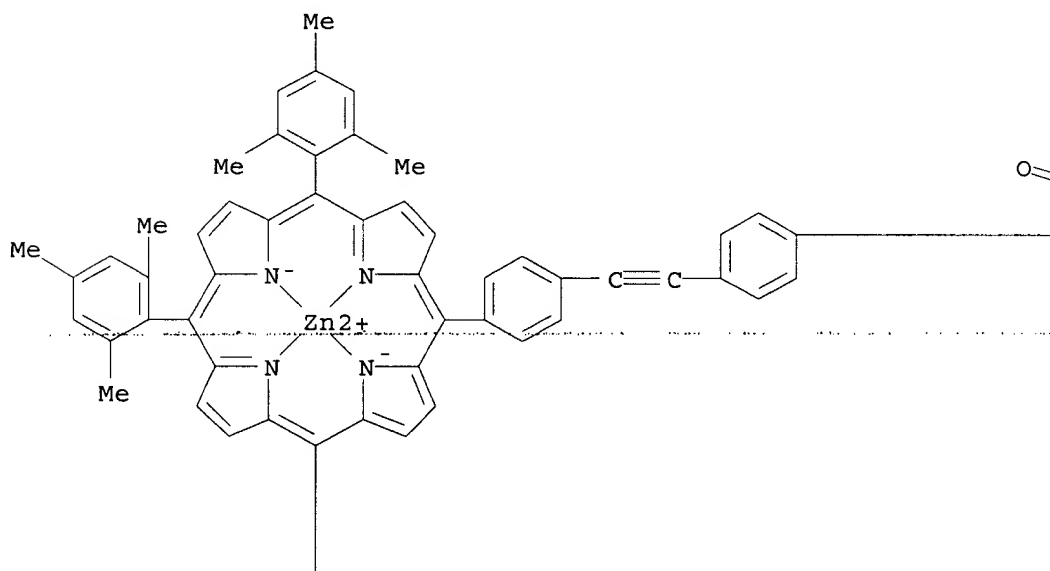
RL: PRP (Properties)

(comparison compd.; photophys. properties of dyads consisting of
perylene-bis(imide) connected to either magnesium porphyrin or free
base porphyrin via adiphenylethyne linker)

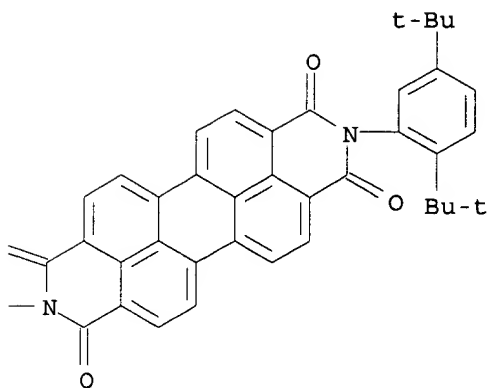
RN 359862-69-4 HCAPLUS

CN Zinc, [2-[2,5-bis(1,1-dimethylethyl)phenyl]-9-[4-[[4-[10,15,20-tris(2,4,6-
trimethylphenyl)-21H,23H-porphin-5-yl-.kappa.N21,.kappa.N22,.kappa.N23,.ka
ppa.N24]phenyl]ethynyl]phenyl]anthra[2,1,9-def:6,5,10-
d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetronato(2-)]-, (SP-4-2)- (9CI)
(CA INDEX NAME)

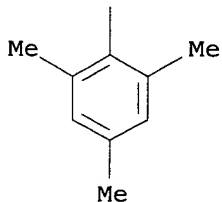
PAGE 1-A



PAGE 1-B



PAGE 2-A



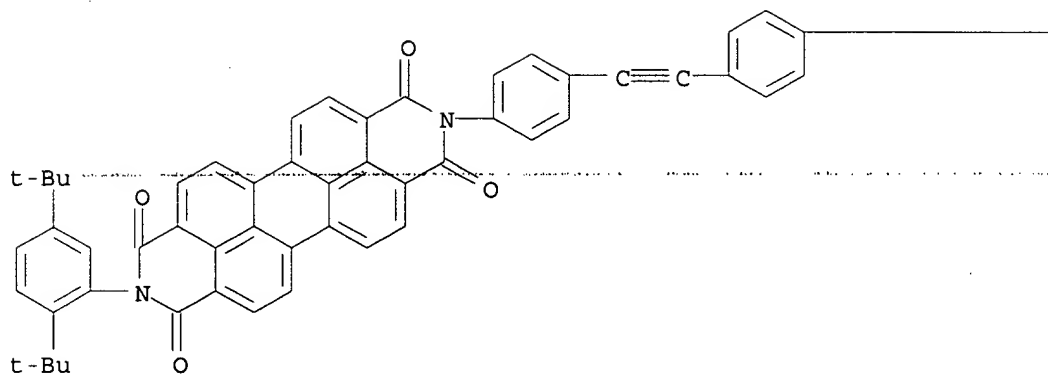
IT 367889-52-9P 367906-89-6P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(photophys. properties of dyads consisting of perylene-bis(imide) connected to either magnesium porphyrin or free base porphyrin via adiphenylethyne linker)

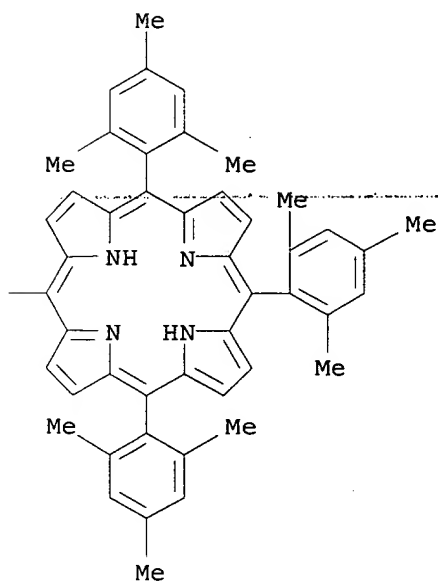
RN 367889-52-9 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2-[2,5-bis(1,1-dimethylethyl)phenyl]-9-[4-[4-[10,15,20-tris(2,4,6-trimethylphenyl)-21H,23H-porphin-5-yl]phenyl]ethynyl]phenyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



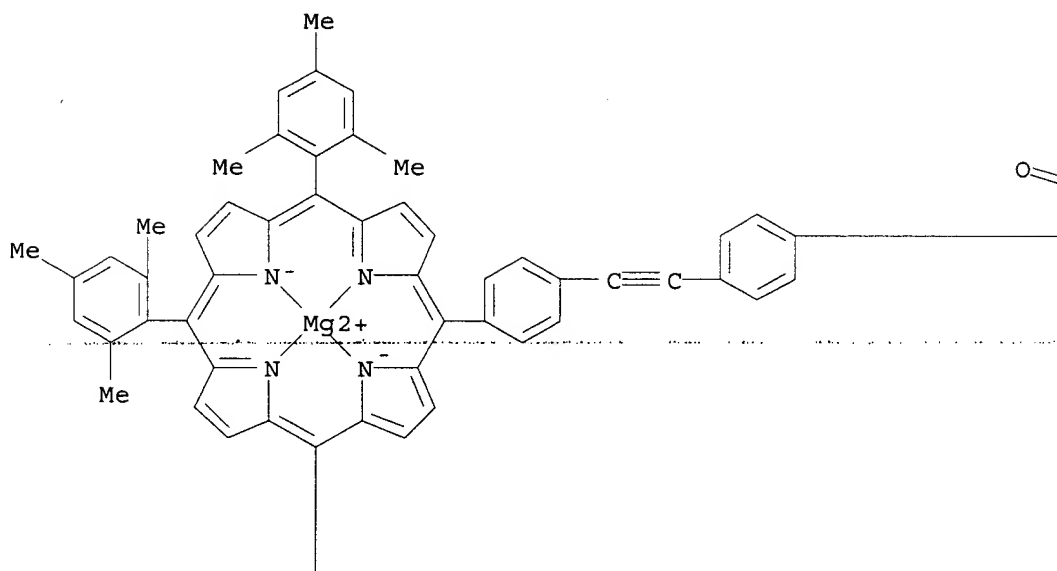
PAGE 1-B



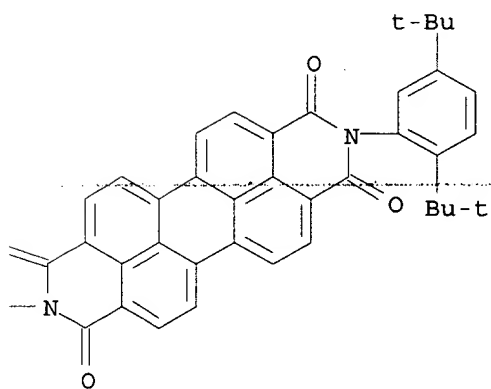
RN 367906-89-6 HCAPLUS

CN Magnesium, [2-[2,5-bis(1,1-dimethylethyl)phenyl]-9-[4-[[4-[10,15,20-tris(2,4,6-trimethylphenyl)-21H,23H-porphin-5-yl-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]phenyl]ethynyl]phenyl]anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetronato(2-)]-, (SP-4-2)-(9CI) (CA INDEX NAME)

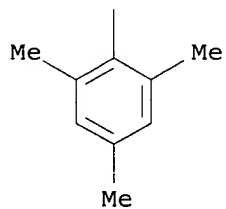
PAGE 1-A



PAGE 1-B



PAGE 2-A



REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 4 OF 6 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:551132 HCAPLUS

DOCUMENT NUMBER: 135:249353

TITLE: Synthesis and Excited-State Photodynamics of Perylene-Porphyrin Dyads. 1. Parallel Energy and Charge Transfer via a Diphenylethyne Linker

AUTHOR(S): Prathapan, Sreedharan; Yang, Sung Ik; Seth, Jyoti; Miller, Mark A.; Bocian, David F.; Holten, Dewey; Lindsey, Jonathan S.

CORPORATE SOURCE: Department of Chemistry, North Carolina State University, Raleigh, NC, 27695-8204, USA

SOURCE: Journal of Physical Chemistry B (2001), 105(34), 8237-8248

CODEN: JPCBFK; ISSN: 1089-5647

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The photophys. properties of a perylene-porphyrin dyad have been examd. with the aim of using this construct for mol. photonics applications. The dyad consists of a perylene-bis(imide) dye (PDI) connected to a zinc porphyrin (Zn) via a diphenylethyne linker (pep). In both polar and nonpolar solvents, the photoexcited perylene unit (PDI*) decays very rapidly (lifetimes of 2.5 (toluene) and 2.4 ps (acetonitrile)) by energy transfer to the porphyrin, forming PDI-pep-Zn* in high yield (80%, toluene; 70% acetonitrile), and hole transfer to the porphyrin, forming PDI--pep-Zn+ in lesser yield (20%, toluene; 30% acetonitrile). In both toluene and acetonitrile, the Zn* excited state subsequently decays with a lifetime of 0.4 ns primarily (80%) by electron transfer to the perylene (forming PDI--pep-Zn+). In the nonpolar solvent (toluene), the PDI--pep-Zn+ charge-transfer product has a lifetime of >10 ns and decays by charge recombination primarily to the ground state but also by thermal repopulation of the Zn* excited state. The occurrence of the latter process provides a direct exptl. measure of the energy of the charge-sepd. state. In the polar solvent (acetonitrile), the PDI--pep-Zn+ charge-sepd. state decays much more rapidly (<0.5 ns) and exclusively to the ground state. In general, the complementary perylene and porphyrin absorption properties together with very fast and efficient PDI*-pep-Zn+ fwdarw. PDI-pep-Zn* energy transfer suggest that perylenes have significant potential as accessory pigments in porphyrin-based arrays for light-harvesting and energy-transport applications. Furthermore, the finding of fast energy transfer initiated in PDI*, charge-transfer reactions that can be elicited either in PDI* or Zn*, and a charge-sepd. state (PDI--pep-Zn+) that can be long- or short-lived depending on solvent polarity, indicates the versatility of the perylene-porphyrin motif for a variety of applications in mol. photonics.

CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 83054-80-2 150152-74-2

RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(in synthesis of perylene-zinc porphyrin dyad)

IT 359857-37-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(in synthesis of perylene-zinc porphyrin dyad)

IT 359862-69-4P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

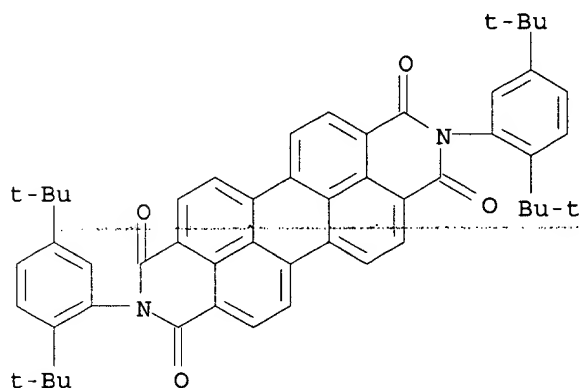
(photophys. properties of perylene-diphenylethyne bridge-zinc porphyrin dyad in different solvents and dynamics of photoinduced energy- and charge transfer in)

IT 83054-80-2

RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(in synthesis of perylene-zinc porphyrin dyad)

RN 83054-80-2 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2,9-bis[2,5-bis(1,1-dimethylethyl)phenyl]- (9CI) (CA INDEX NAME)

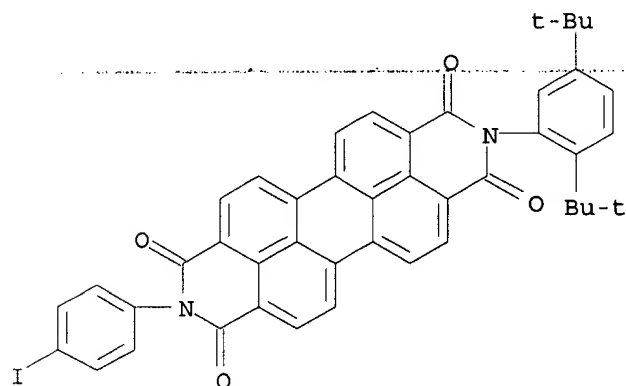


IT 359857-37-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(in synthesis of perylene-zinc porphyrin dyad)

RN 359857-37-7 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2-[2,5-bis(1,1-dimethylethyl)phenyl]-9-(4-iodophenyl)- (9CI) (CA INDEX
NAME)



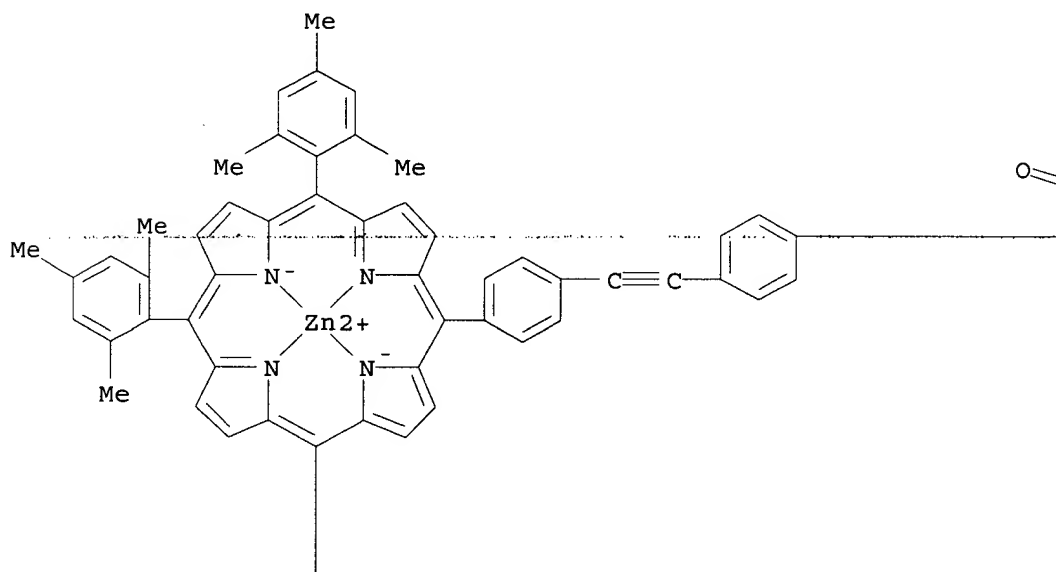
IT 359862-69-4P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN
(Synthetic preparation); PREP (Preparation); PROC (Process)
(photophys. properties of perylene-diphenylethyne bridge-zinc porphyrin
dyad in different solvents and dynamics of photoinduced energy- and
charge transfer in)

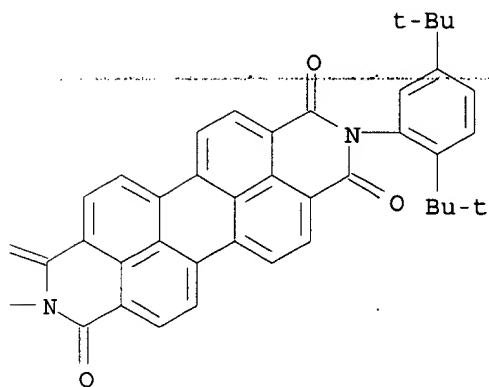
RN 359862-69-4 HCAPLUS

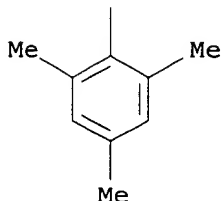
CN Zinc, [2-[2,5-bis(1,1-dimethylethyl)phenyl]-9-[4-[[4-[10,15,20-tris(2,4,6-trimethylphenyl)-21H,23H-porphin-5-yl-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]phenyl]ethynyl]phenyl]anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetronato(2-)]-, (SP-4-2) - (9CI)
(CA INDEX NAME)

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PAGE 1-B





REFERENCE COUNT: 52 THERE ARE 52 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 5 OF 6 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:367285 HCAPLUS

DOCUMENT NUMBER: 133:193411

TITLE: Naphthalene- and Perylene-Based **Linkers** for the Stabilization of Hairpin Triplexes

AUTHOR(S): Bevers, Susan; Schutte, Susan; McLaughlin, Larry W.

CORPORATE SOURCE: Department of Chemistry Merkert Chemistry Center, Boston College, Chestnut Hill, MA, 02467, USA

SOURCE: Journal of the American Chemical Society (2000), 122(25), 5905-5915

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Planar perylene- and naphthalene-based diimide linkers can be employed to tether the Watson-Crick and the Hoogsteen strands of a DNA triplex, thus providing conjugates capable of targeting single-stranded nucleic acids with the formation of hairpin triplexes. The planar linkers are designed to bridge the terminal base triplet of the three-stranded complex and provide base-stacking interactions with all three residues. Sixteen complexes have been prepd., eight with each linker, half with RNA (R) targets and half with DNA (D) targets. The conjugate sequences are composed of two strands of DNA, two of 2'-O-Me RNA (M), or one of each. In comparison to similar complexes formed with a hexa(ethylene glycol) linker, the planar linkers enhance the TM values for the complexes by as much as 28 .degree.C with .DELTA.G values indicating as much as 12.3 kcal/mol of stabilization relative to the simple glycol linker. All sixteen complexes have been characterized by TM measurements and .DELTA.G detns. That .pi.-stacking interactions are present between the linkers, and the nucleobases can be inferred from the quenching of the perylene fluorescence upon complex formation, and the observation of an absorbance vs temp. transition for the naphthalene-based linker at 383 nm and for the perylene-based linker monitored at 537 nm.

CC 33-10 (Carbohydrates)

Section cross-reference(s): 22

ST fluorescence naphthalene perylene **linker** hairpin DNA triplex prepn; RNA naphthalene perylene **linker** hairpin triplex thermal stability prepn; naphthalene perylene **linker** hairpin DNA triplex thermal stability prepn

IT Quaternary structure

(DNA triplex; naphthalene- and perylene-based **linkers** for the stabilization of DNA and RNA hairpin triplexes)

IT Fluorescence

Thermal stability

(naphthalene- and perylene-based **linkers** for the stabilization of DNA and RNA hairpin triplexes)

IT Exciplex
(triplet; naphthalene- and perylene-based linkers for the stabilization of DNA and RNA hairpin triplexes)

IT 215514-46-8P 215514-53-7P 288637-62-7P 288637-63-8P 288637-64-9P
288637-65-0P 288637-66-1P 288637-67-2P 288637-68-3P 288877-25-8P
288877-26-9P 288877-27-0P 288877-28-1P 288877-29-2P 288877-30-5P
288877-31-6P 288877-32-7P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(naphthalene- and perylene-based linkers for the stabilization of DNA and RNA hairpin triplexes)

IT 81-30-1 128-69-8 929-06-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(naphthalene- and perylene-based linkers for the stabilization of DNA and RNA hairpin triplexes)

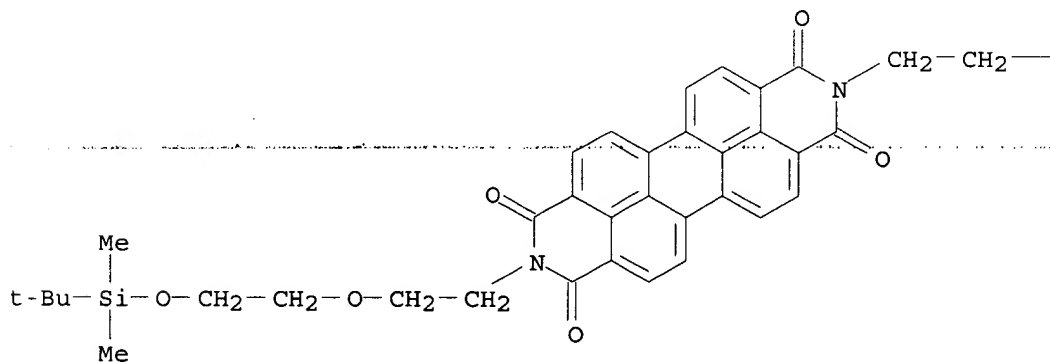
IT 164932-87-0P 215297-15-7P 215297-16-8P 215297-17-9P
215297-18-0P 215297-19-1P 215297-20-4P
215297-21-5P 215297-22-6P 215514-42-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(naphthalene- and perylene-based linkers for the stabilization of DNA and RNA hairpin triplexes)

IT 215297-18-0P 215297-19-1P 215297-20-4P
215297-21-5P 215297-22-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
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(naphthalene- and perylene-based linkers for the stabilization of DNA and RNA hairpin triplexes)

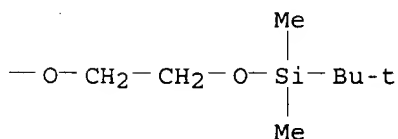
RN 215297-18-0 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2,9-bis[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl] - (9CI)
(CA INDEX NAME)

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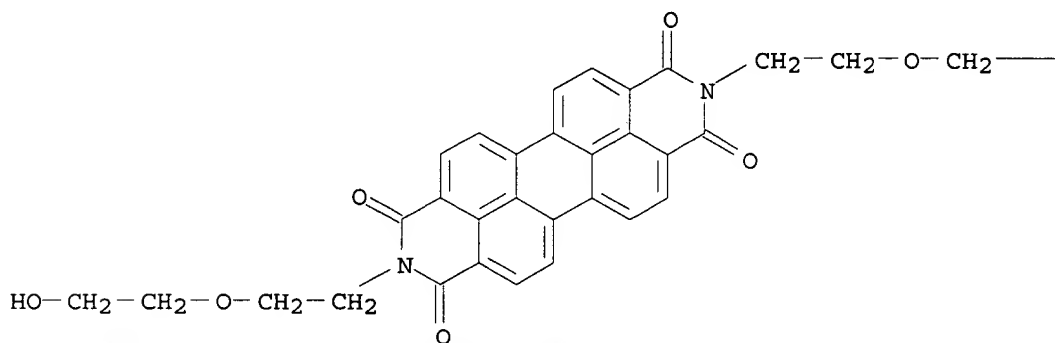
PAGE 1-B



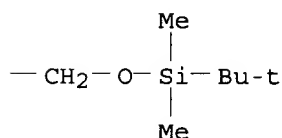
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CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2-[2-[2-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]-9-[2-(2-
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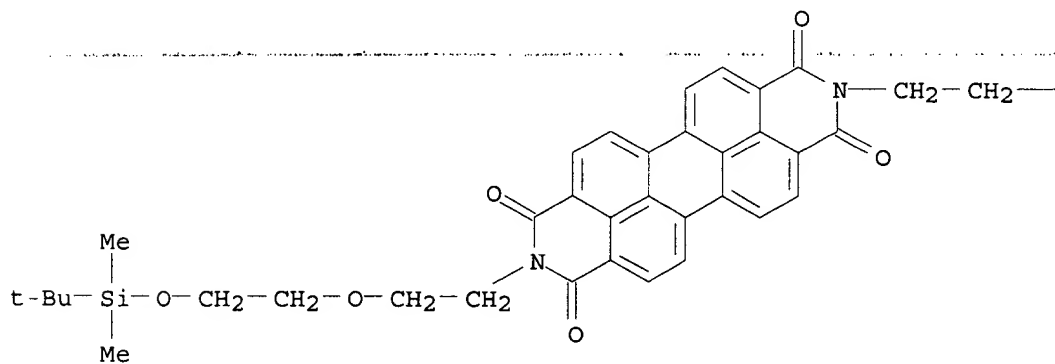
PAGE 1-B



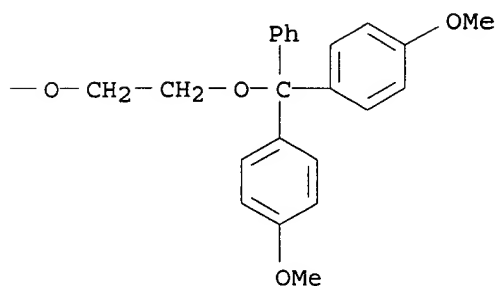
RN 215297-20-4 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
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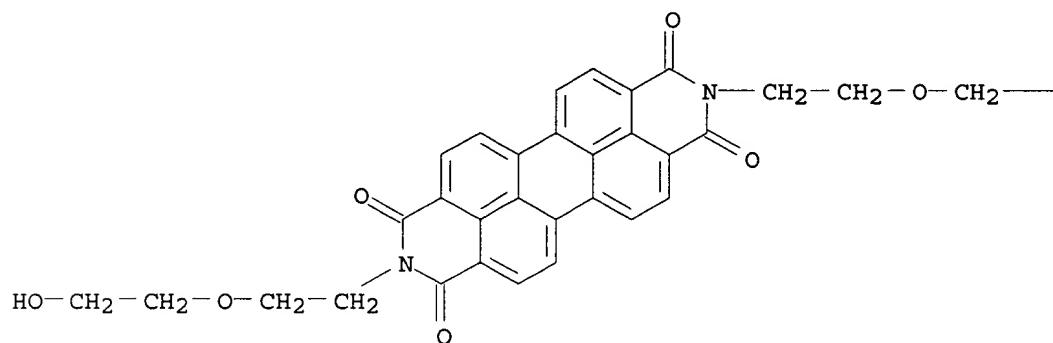


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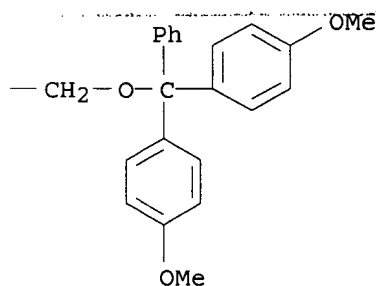


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 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
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 hydroxyethoxy)ethyl]- (9CI) (CA INDEX NAME)

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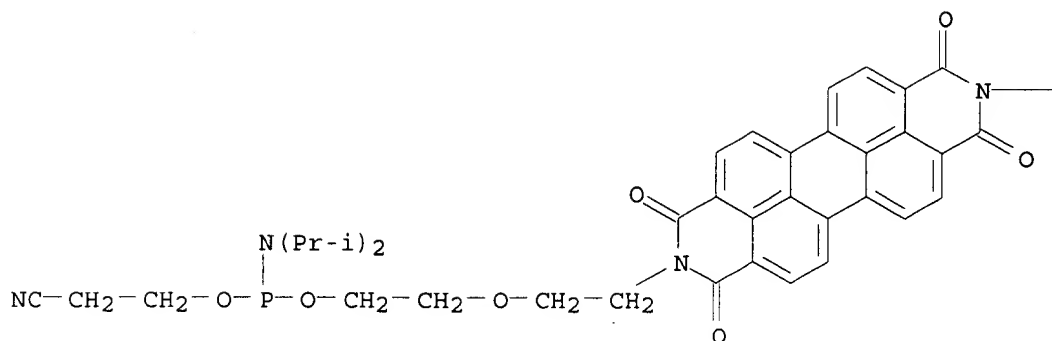


PAGE 1-B

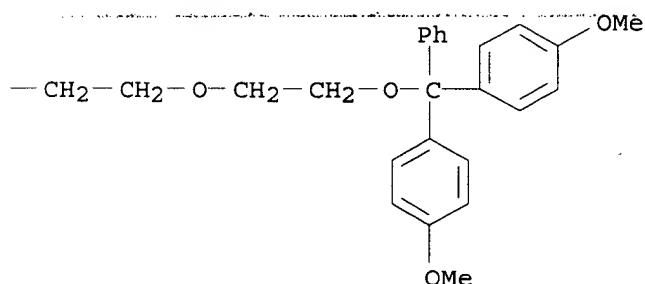


RN 215297-22-6 HCAPLUS
 CN Phosphoramidous acid, bis(1-methylethyl)-, 2-[2-[9-[2-[2-[bis(4-
 methoxyphenyl)phenylmethoxy]ethoxy]ethyl]-3,8,9,10-tetrahydro-1,3,8,10-
 tetraoxoanthra[2,1,9-def:6,5,10-d'e'f']diisoquinolin-2(1H)-yl]ethoxy]ethyl
 2-cyanoethyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 6 OF 6 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:642702 HCAPLUS

DOCUMENT NUMBER: 130:4018

TITLE: Perylene- and Naphthalene-Based **Linkers** for Duplex and Triplex Stabilization

AUTHOR(S): Bevers, Susan; O'Dea, Timothy P.; McLaughlin, Larry W.

CORPORATE SOURCE: Department of Chemistry Merkert Chemistry Center, Boston College, Chestnut Hill, MA, 02167, USA

SOURCE: Journal of the American Chemical Society (1998), 120(42), 11004-11005

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

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LANGUAGE: English

AB Perylene and naphthalene were chosen for development into planar π -stacking linkers in DNA duplex or triplex preps. Linkers were prep'd. by reaction of the corresponding tetra-carboxylic acid dianhydride with 2-aminoethoxyethanol or its tBDMS deriv. Thermal stabilities of DNA duplex (5'-TCTTTTCTT-linker-AAGAAAAGA) or triplex (5'-TCTTTTCTT-linker-TTCTTTTCT/9-mer or 19-mer) systems. Both the perylene and naphthalene-based duplex linkers showed increased T_M values, compared to a duplex tethered by hexa(ethylene glycol), but the perylene linker showed only a small increase over naphthalene, perhaps because it is significantly larger than necessary to bridge the phosphate residues at the terminus of a B-form helix, while the naphthalene-based linker can be

more optimally positioned at the end of a duplex. In triplex formation, the most significant TM enhancements were those that occurred with the 19-mer complex, where the perylene-based linker showed a 19.degree. increase at pH 5.5; for both linkers, this is perhaps due to their potential to provide stacking interactions with all three residues, and possibly with the first base residue of the target strand that extends beyond the triplex region.

CC 33-10 (Carbohydrates)

ST perylene naphthalene linker DNA prepn solidphase; duplex triplex
DNA prepn polycyclic linker

IT Nucleic acid hybridization

Solid phase synthesis

(perylene- and naphthalene-based linkers for duplex and
triplex stabilization)

IT DNA

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(perylene- and naphthalene-based linkers for duplex and
triplex stabilization)

IT 215514-38-8P 215514-42-4P 215514-45-7P 215514-46-8P 215514-48-0P

215514-53-7P 215587-52-3P 215587-53-4P 215587-54-5P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(perylene- and naphthalene-based linkers for duplex and
triplex stabilization)

IT 81-30-1 128-69-8 929-06-6

RL: RCT (Reactant); RACT (Reactant or reagent)

(perylene- and naphthalene-based linkers for duplex and
triplex stabilization)

IT 164932-87-0P 215297-15-7P 215297-16-8P 215297-17-9P

215297-18-0P 215297-19-1P 215297-20-4P

215297-21-5P 215297-22-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)

(perylene- and naphthalene-based linkers for duplex and
triplex stabilization)

IT 215297-18-0P 215297-19-1P 215297-20-4P

215297-21-5P 215297-22-6P

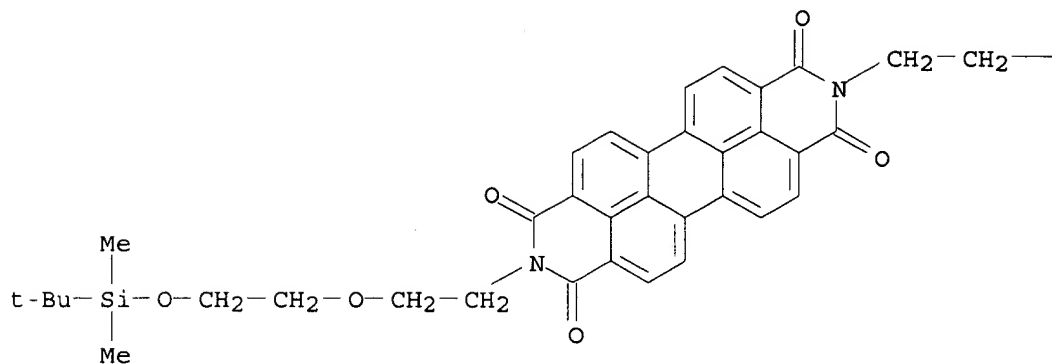
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(perylene- and naphthalene-based linkers for duplex and
triplex stabilization)

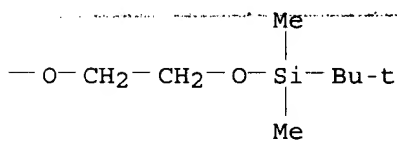
RN 215297-18-0 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-def']disoquinoline-1,3,8,10(2H,9H)-tetrone,
2,9-bis[2-[2-[[[1,1-dimethylethyl]dimethylsilyl]oxy]ethoxy]ethyl]- (9CI)
(CA INDEX NAME)

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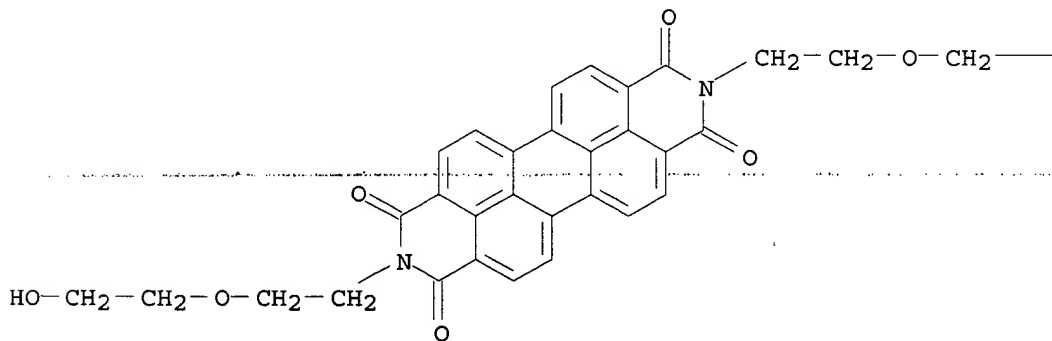
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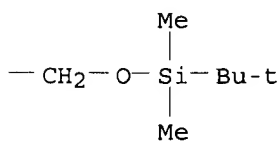
RN 215297-19-1 HCAPLUS

CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
2-[2-[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]-9-[2-(2-
hydroxyethoxy)ethyl]- (9CI) (CA INDEX NAME)

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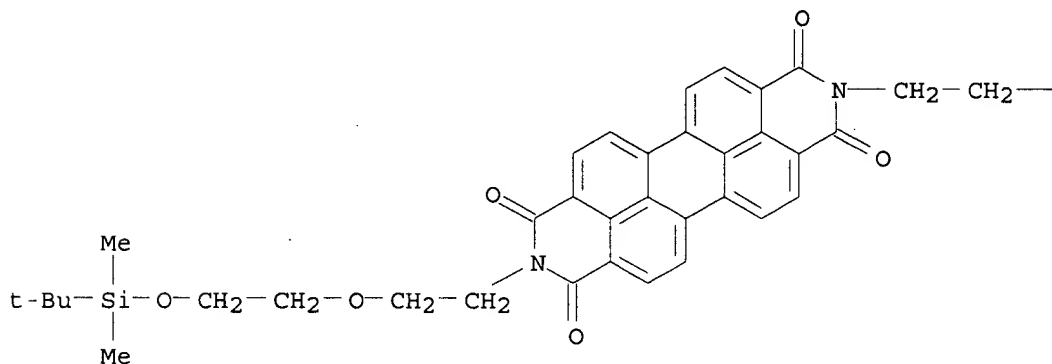


RN 215297-20-4 HCAPLUS

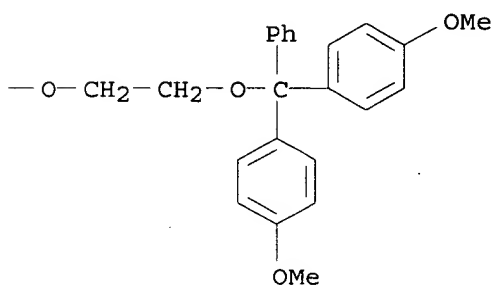
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,

2-[2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxy]ethyl]-9-[2-[2-[[1,1-dimethylethyl)dimethylsilyl]oxy]ethoxy]ethyl]- (9CI) (CA INDEX NAME)

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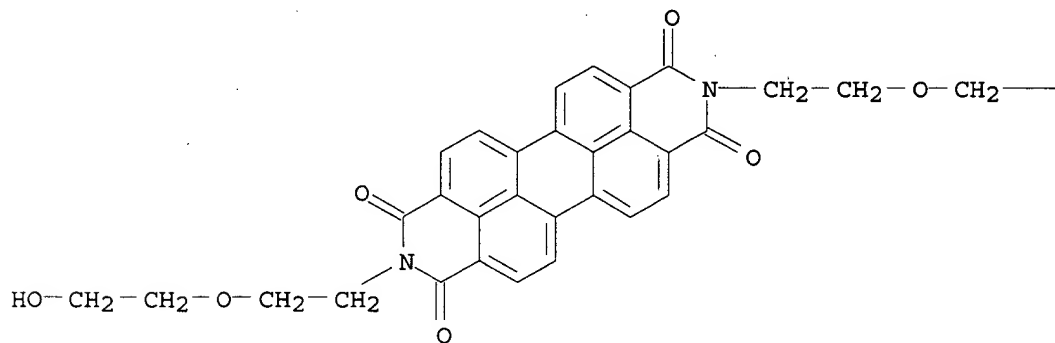


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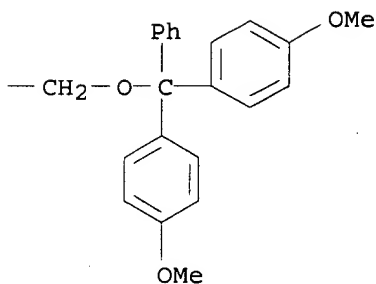


RN 215297-21-5 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone,
 2-[2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxy]ethyl]-9-[2-(2-hydroxyethoxy)ethyl]- (9CI) (CA INDEX NAME)

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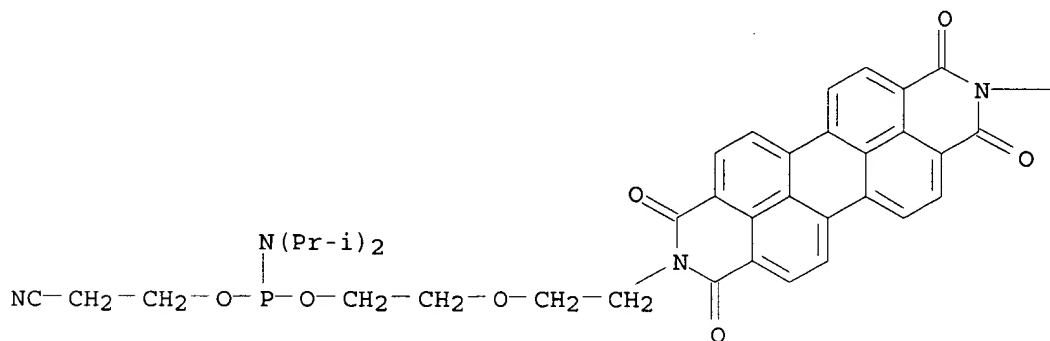


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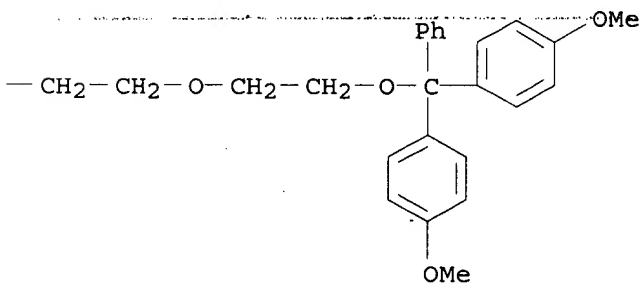


RN 215297-22-6 HCAPLUS
 CN Phosphoramidous acid, bis(1-methylethyl)-, 2-[2-[9-[2-[2-[bis(4-methoxyphenyl)phenylmethoxy]ethoxy]ethyl]-3,8,9,10-tetrahydro-1,3,8,10-tetraoxanthra[2,1,9-def:6,5,10-d'e'f']diisoquinolin-2(1H)-yl]ethoxy]ethyl 2-cyanoethyl ester (9CI) (CA INDEX NAME)

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